Development and Learning

DEVELOPMENT AND LEARNING

The Psychology of Childhood and Youth in a Democratic Society

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PREFACE

Development and Learning presents an integration of results and an interpretation of recent scientific studies in human psychology from infancy through adolescence The book seeks to interpret and clarify the relations between biological, emotional, intellectual, and social aspects of development so that students may understand the complex processes by which children and youths become individual personalities with diverse patterns of behavior The two terms, "development" and "learning," reflect two aspects of psychology which are brought together in the text; for, obviously, development involves learning and learning implies development That the scientific findings presented may have fuller meaning, attention is given to specific ways in which facts of development and learning fit with and can be utilized for democratic ways of living Our position is that American educators and psychologists have an obligation to utilize available scientific knowledge for the promotion of a democratic society. It is our position, furthermore, that democratic living is supported by scientific knowledge of development and behavior, and that of all known forms of socio-political organization, the democratic provides the conditions for optimal and maximal development. Thus the understanding of development and learning is broadened, deepened, unified, and motivated by keeping

in view the chief purposes of education in a democratic society

We have sought to give the student a unified view of development and behavior rather than to present materials segmentally, under the common psychological categories Thus the organization of the chapters proceeds from the introductory Part I, which presents the necessity of choosing a direction for development, to Part II, in which an age-level sequence from infancy through adolescence is combined with an integration of the biological, linguistic, emotional, intellectual, and social aspects of development. The method of combining certain age-levels with important topical areas seeks to avoid the inadequacies and misconceptions that arise when either the age sequence or the topical organization is used alone. Although certain aspects of development and behavior are emphasized in the chapters constituting the sequence, we have sought to portray "the child as a whole" and to give substance to this most significant concept. The last two chapters of Part II continue to unify the study of development by considering the more subtle problems of child-adult relations and the practical methods of studying the individual

In Part III many of the problems raised in Part II are pursued further, but the organization and treatment change to an analysis and evaluation of the approaches to learning commonly used by parents and teachers The several approaches are organized in a sequence which aids in demonstrating their relations to each other and in evaluating their contributions to development in a democratic community, as well as to the learning process in general

In Part IV some selected and most important persistent problems of psychology for education are presented. And in conclusion there are cited other problems of democracy beyond the immediate province of psychology that bear heavily upon the prospects of human development.

The chapters of this book have undergone experimental use with students from the freshman to the graduate level, including experienced teachers, with the result that the form and content have been modified in the process The book is designed primarily for use early in the course sequences that prepare students to teach in elementary and secondary schools To meet the needs of inexperienced students, the technical vocabulary has been kept at a minimum, and numerous examples of behavior at the various age-levels have been included The diverse experiences and responsibilities of the authors have helped to balance the emphasis upon the elementary and secondary school levels. The treatment of both levels of education enables the student of elementary education to look beyond his immediate concerns to the further development of children at later ages, while the student of secondary education acquires a necessary basis for understanding the pre-adolescent and the adolescent whose development and behavior have been continuous from the prenatal period onward

Experienced teachers should find that the interpretations of recent studies in development and learning throw light upon their daily problems Parents may likewise find help in the facts and explanations of development, as well as of child-adult relations, while the whole text indicates the trends of the modern school, from the nursery school onward.

The authors are indebted, of course, to the many men and women whose work and publications were drawn upon during the writing of this, as of any other, text book Specifically, our indebtedness to author and publisher has been acknowledged on the appropriate pages. We wish, however, to take this opportunity to acknowledge our special indebtedness to the writings of Professor Ellis Freeman. We are very grateful also to Mr. Richard E. Worthington who read several chapters in manuscript and offered helpful

suggestions, to Mr Clifford A Bayard who made valuable criticism of the chapter on "Esthetic Taste", and to Dr John M Baker who read critically the galley proof Professor Roger Barker, too, gave the galley proof a careful reading and offered a number of useful suggestions

One of the present authors had the benefit of study with Professors Boyd H Bode and John Dewey, both of whom significantly influenced his thinking and point of view. The other author was fortunate in having been, during 1939-1940, one of the collaborators in the Division of Child Development and Teacher Personnel (Commission on Teacher Education of the American Council on Education) located at the University of Chicago, he was thus provided with opportunities for research and for contacts with and evaluation of a number of experiments in progress The authors themselves, however, assume joint responsibility for what appears in these pages.

February, 1942

W F B.
F S F.

PART I

Introduction

I

CHILD PSYCHOLOGY AND
THE DEMOCRATIC COMMUNITY

THE TEACHER, parent, or anyone who shares in the responsibility of guiding a child's life must study both the child and the social community in which the child and his guides live For it is evident that the course of human development, which each of us is undergoing from day to day, depends as definitely upon the social environment in which we move as upon our personal motives, skills, intellectual abilities, and special interests. As no child can live and grow without air to breathe, so no child or youth can achieve social growth except in a social atmosphere

When we consider development as a process of interaction between an individual and his environment, we sometimes liken parents and teachers who rear children to carpenters who erect buildings Both carpenters, on the one hand, and parents and teachers, on the other, should have a plan of the product to be produced Although a carpenter may have at hand piles of lumber, boxes of nails, saws, and hammers, and, although he may have expert knowledge of these materials and skill with these tools, he will not even begin to build a house until he has before him also a plan of the structure

This analogy must be strictly limited in its interpretation, however, for there is a great and fundamental difference between plans for building a house and those for developing a human organism The carpenter is working with static, inanimate materials that he can shape at will Parents and teachers are working with human organisms that are dynamic and developing, children have behavior motives and objectives of their own Recognizing this fundamental difference, we can still agree that every guide of children should have a plan In order to plan wisely, he must have both knowledge of the developing human materials and understanding of the changing social structure in which these immature individuals are seeking fuller membership.

This two-sided problem is much more difficult for those of us who deal with living human materials than for the carpenter, or even the trainer of animals in the circus or the laboratory In addition to demonstrating the active, dynamic, and developing character of the human organism, scientific studies have shown that each child is different from every other child, so the teacher has responsibility for discovering his characteristics and treating him in ways appropriate to his different individuality. Furthermore, since he is growing and learning from month to month, he requires new experiences, which should be increasingly complex as the weeks go by Think of several children or youths of similar age among your acquaintances, consider how radically they differ from each other, then look back at the changes you have seen them undergo as they passed from infancy through childhood or from childhood through adolescence Such a set of variegated, moving pictures based upon intimate experiences with children will enable anyone to appreciate more fully the complicated responsibilities of child guidance

Diverse and Changing Interpretations of Democracy

But we must face at once the other side of the problem—
the nature of the social structure Today we are inclined to
emphasize the contrast between dictatorship and democracy,
in America we choose democracy This choice of democracy,
however, constitutes only a partial step toward a clear view
of the society into which youth will go Democracy itself
is open to diverse interpretations In any American com-
munity we commonly find persons at one extreme who
emphasize the individualistic, rough-and-ready, competitive
opportunities in a free democracy, while at the other extreme
stand those who see social, friendly, cooperative attitudes as
the essential features of the democratic way of life. Some
Americans stress equality, while others consider liberty most
important Many emphasize the inherent worth of the in-
dividual human being, while other persons point to the de-
velopment of the individual that arises out of social inter-
action within groups and between diverse groups.

Most teachers and parents recognize in some degree all
these different aspects of American democracy and seek to
reconcile them in their own lives and in their guidance of
children Consequently, our concept of democracy is chang-
ing continually, and the program of education in any com-
munity also must be modified accordingly to meet new dan-
gers and explore new prospects in that community and in
the nation and world to which it belongs. So we begin with
the belief that no student of development can afford to
neglect the study either of the changing individual or of the
changing community of which both pupil and teacher are
members As may be seen more clearly later, these two sides
of guidance are really as inseparable in practice as the inside
and outside of a bowl, although the two aspects often have
fallen apart in theoretical discussions which were devoted
exclusively to child psychology or to social philosophy

Lag of Schools behind Scientific and Social Progress

Passing by, for the time being, the particular contributions
and retardations commonly produced in the young child's
life by the home before he comes to school, let us consider
briefly the question whether our schools have met adequately
the complex problems of human development. The elemen-
tary and secondary schools of the United States, in which we
spent so many days of childhood and youth, have seemed in
the past to pay little attention to the fact that children of
similar age placed in the same first grade, or sixth grade, or
the same class of the senior high school differed in many
significant ways from one another Commonly, they all were
assigned the same lessons, were held to the same periods of
study and recitation, and were marked low, medium, or high
according to the same standard. Although the difficulty of
the work was "graded" according to age, the degree of motor
skill demanded often was beyond the capacity of first graders,
especially in handwriting, while in the sixth grade not
enough intellectual responsibility was granted, for example,
through failure to provide and use an appropriate library,
and too little social responsibility was given to the youngsters
for planning and achieving in their daily program.

Besides failing to understand adequately the human ma-
terials in their hands, teachers and superintendents, while
giving verbal allegiance to democracy, often have organized
and conducted their schools like benevolent autocrats, if not
harsh dictators. Furthermore, the schools have concentrated
in too many cases upon narrow bookishness, neglecting the
physical, emotional, social, esthetic, and broadly intellectual
development so essential to youth The school also has sepa-
rated itself from the home and other social institutions of
the community and therefore failed to promote well rounded
human development.

While the reader may feel that the school which he at-

tended did not exhibit all these weaknessess, and although he may remember with deep gratitude the fine contributions made to his own life by individual teachers, these adverse criticisms may suggest a broader basis for appraisal of the programs of the schools he has known and will encounter in the future Should any emotional distaste be aroused in the reader by such an appraisal of his own school experience, it need not be dissipated in vain regrets or useless accusations but can be turned toward vigorous and intelligent participation in the movement to reorganize schools for the development of individuals who will constitute a more democratic society.

Were we to seek explanations for the lag of the school behind scientific demonstrations of individual differences and of reliable sequences in human development, as well as its lag behind movements favoring political and social democracy in the United States since its foundation, we would find strong forces supported by long historic processes opposing these more recent findings and attitudes.

Without going deeply into the historic details, let us glance at a few retarding factors. In the period following the establishment of the Republic, the economical school system devised by Joseph Lancaster for mill towns in England set the pace for free, public elementary schools in early American cities According to Lancaster's monitorial scheme, one schoolmaster could teach perhaps thirty monitors, selected from the brighter, older boys in a school of three hundred, and each of these monitors, in turn, could teach ten other boys all in one large room under the eye of the single master. While this inexpensive process made possible a meager education for thousands of poor city children, who otherwise might never have learned any reading, writing, or arithmetic, and while it thus gave a start toward a free, publicly-supported school, its mechanical routines of group recitation were fastened upon both urban and rural schools for genera-

tions. All the pupils in a class moved at the same rate over
the same simple lessons This factory-like process of mass
education—so similar to the mass production by power ma-
chinery, which arose about that time in England and the
United States—became a dominating influence in elemen-
tary and also to a marked extent in secondary schools.

The inclination toward uniform class procedure was and
often still is strongly supported by the sale of uniform text-
books and their authoritative "adoption" in cities, counties,
and even entire states by school boards and political officials,
whose leading members, being businessmen, were and usually
still are in full sympathy with "economical" mass produc-
tion Although the monitorial scheme gradually disappeared,
the preparation of teachers for the elementary school re-
mained on so low a level for many years that their teaching
consisted largely of "lesson-hearing." The lack of psycho-
logical information and of social outlook upon the part of
teachers, school administrators, and school-board members—
and indeed on the part of the community in general—re-
sulted in the use of mechanical devices that have retarded
the development of innumerable individuals during the ele-
mentary school years and have thereby interfered with the
establishment of democratic forms of social organization.[1]

Peculiar Difficulties of Secondary Schools

The secondary schools of the United States likewise were
affected unfavorably by the factors already mentioned, but
they have had added difficulties derived from their close con-
nection with "higher education" Until rather recently our
high schools have devoted themselves expressly to the prepa-
ration of their students for college and university, largely
disregarding the fact that many youths never would reach

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[1] See, for example, V T Thayer, *The Passing of the Recitation*, D C
Heath and Company, Boston, 1928, Chapters 1 and 2

a college campus One source of this error has been the con-
nections between European and American universities, both
educational systems having been dominated by the European
tradition of "class" education The Italian, French, British,
and German universities, which arose in the Middle Ages,
served not the common people but the privileged classes—
the well-born, the intellectual, the rich This social stratifica-
tion in education long kept the content of "higher educa-
tion," even in the United States, back in the Greek and Latin
literatures of ancient and medieval times, far away from the
common, every-day, living interests of modern youth. The
teachers in American secondary schools have spent too much
of their time remembering fondly the colleges that they at-
tended and too little investigating the lives of the adolescents
whom they were guiding As long as our high schools and
academies were regarded as "prep" schools for colleges, there
was little chance for vital contact either with the intimate
personal needs of adolescents or with the broad problems of
social and economic life these young people must meet.[2]

Much has been done in recent years toward modifying the
relationships between colleges and high schools in the inter-
est of a more adequate education for youth and toward
bringing the high school into closer contact with the eco-
nomic and social life of its community Also a greater degree
of unity between modern elementary and secondary schools
has been achieved through new methods based upon a more
adequate psychology and new objectives derived from a
clearer view of social democracy. Indeed, the college, the
high school, and the elementary school are discovering com-
mon interests as they seek to escape from their own peculiar
limitations.

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[2] See, Francis T Spaulding, *High School and Life,* Ruth Eckert and
Thomas O Marshall, *When Youth Leave School,* Thomas L Norton, *Educa-
tion for Work,* publications of The Regents' Inquiry of the State of New York,
McGraw-Hill Book Company, New York, 1939

Two Related Aspects of Teacher Education

Everyone, then, who attempts to guide human development at any age level needs a thorough understanding of the processes of social growth that have occurred and are occurring in the individuals for whom he takes a share of responsibility As an integral part of his equipment the guide also needs clear insight regarding the nature of the social organization in which and through which individual growth occurs The art of teaching or guiding consists in using these two kinds of appreciative understanding in setting up a series of social situations that will continuously enrich the life of the individual concerned and at the same time enhance democratic processes in the school and the community

For an understanding of human development we turn to scientific studies in the fields of biology and psychology We need to trace the growth of individuals by investigation, as rigorous as possible, from infancy through childhood and adolescence to adulthood Too often the teacher of five- or six-year-old "beginners" has taken for granted that development at home in earlier childhood contained few problems and revealed no processes of significance for school education. Now we know that these first years of a child's experience hold a strong hand over the individual's whole life. The high school teacher of the past, if he did not neglect altogether the physical, emotional, and social aspects of development, often considered adolescence to be a peculiar period sharply separated from childhood. Today many believe that the "problems of adolescence" nearly always may be traced to earlier difficulties and to the social patterns in which the adolescent lives and develops, thereby throwing light upon the appropriate remedies [3] Laying aside all mysterious assumptions about the sources of conduct, "good" and "bad,"

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[3] See, for example, Esther L Richards, *Behavior Aspects of Child Conduct*, The Macmillan Company, New York, 1932, Chapter 11

we search carefully for the actual causal factors by means of accurate studies in the biological, psychological, and social history of the individual

While we are looking backward with the scientists to find the factors underlying the personalities we seek to guide, or are testing these individuals to discover their abilities and dispositions, we must never forget the forward and outward look toward the society these individuals are forming Without neglecting any of the scientific facts and the proofs that substantiate them, we must make a choice of a way of life we seek to create. Whether we wish it or not, the way of life in the future will be somewhat different from that in the past. Scientific inventions—notably the airplane and the radio—have made the life of this generation different from that of the previous one, new inventions will again make a different world But the way in which these inventions will be used in the future depends upon choices made *now* by teachers and parents, children and youths We must set up our goals in advance, for example, we must choose between dictatorship and democracy. If we choose democracy, we must find an interpretation of democracy that accords with the complex organization of the modern industrial world, an interpretation that, at the same time, promises well for human development. This forward-looking, choice-making, creative aspect of life and education we call seeking a social outlook, or a philosophy of education and of life. Everyone who takes responsibility for guiding youth must be a continuous student of sciences, such as psychology, and hold a persistent faith in a way of life, such as democracy

Schools Seeking the Meaning of Democracy Today

The great diversity of interpretations of democracy found in schools today, reflecting similar diversities of thought in the home and in the community, is revealed by a study made

for the Educational Policies Commission of the evidences of democratic educational practice in ninety secondary schools in the United States [4] The report lists as examples six different patterns of democratic education found in the schools (1) the superintendent sets democratic goals and directs action toward their attainment, claiming efficiency as the main advantage, (2) students are kept busy practicing the use of tools of democracy, stressing wide experience in faculty-inspired activities involving parliamentary procedure and representative government, (3) formulas for democratic planning are made the chief ends of education, the students being required to choose democratic goals and methods, (4) freedom to do as one pleases is considered the heart of democracy, even if teachers find the curriculum lacks unity of purpose and students complain about the weakness of school spirit, (5) socially useful jobs, with widely shared responsibilities, engage the entire school, centering upon community needs without much regard for interpreting democracy, (6) laws of learning and of man set limits to democratic education, emphasizing realistically that ultimate control resides in the authorities above, such as superintendents and school boards The diversity of practice suggested by this list indicates the complexity of the problem of interpreting and applying the democratic way of life as well as the necessity for doing so in every school that takes seriously its responsibility for human development. How can the advantages of these different interpretations be combined in a school and their dangers avoided? The problems of human development cannot be solved by teachers who refuse to face such questions concerning the ultimate objectives of the school and society.

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[4] Educational Policies Commission, *Learning the Ways of Democracy, A Case Book of Civic Education,* National Education Association of the United States and the American Association of School Administrators, Washington, 1940, Chapter 1

The brighter side of the picture is that for many years schools here and there have been experimenting intelligently with the democratic way of life In fact, almost every school in the land has taken at least a few feeble steps, beyond lip-service to democracy, toward actual democratic living by pupils, teachers, and administrators Teachers today are joining in a search for democratic processes and outcomes in school that ultimately will further democratic living in every community. Working together, groups of teachers are discovering that in schools efficient social organization and happy individual development can be joined in a way of life that is essentially democratic [5] Perhaps the school is a social laboratory in which the relations of the individual to society can be demonstrated in such a way that the adult community may get some hints concerning the solution of its more difficult economic, political, and social problems

Individual Development through Social Living

It is apparent, then, that every thoughtful guide—be he parent, teacher, or friend—will at all times be guiding each individual *in some direction,* guiding him toward a chosen way of social life, as well as using all the knowledge available concerning the complex personality he is guiding In the case of a tiny infant the parents may give, as to any young and helpless animal, care designed principally to promote biological growth; but long before the child comes to school his parents will be transmitting to him their native language and their own way of life even though they may be quite unaware that he is picking up their arbitrary choices of

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[5] For an example of an early venture in democratic education, see Katherine Camp Mahew and Anna Camp Edwards, *The Dewey School,* D Appleton-Century Company, New York, 1936, and for more recent examples of persistent facing of democratic problems in school, see Arthur D Hollinshead, *Guidance in Democratic Living,* D Appleton-Century Company, New York, 1941, James S Tippitt, *Schools for a Growing Democracy,* Ginn and Company, Boston, 1936

"right" and "wrong," or their attitude of considering the social consequences of their conduct Nor are teachers just intellectual guides, they too affect the child's choices even when, under the influence of a mistaken application of scientific attitude, they consciously attempt to remain neutral on social and moral issues. On the other hand, as children grow physically, socially, and intellectually toward and through adolescence, they gradually may take more responsibility for guiding their own lives, although even the adult, if he is wise, still seeks throughout life the counsel of his fellows in making fundamental choices So at no time can the practical application of our scientific knowledge of human development safely be divorced from our social outlook toward democracy.[6]

In common speech we often draw a distinction between "making a living" and "having a life." Every individual needs accurate, scientific information and manual skill to perform those tasks by which he earns his livelihood, but his hard work is useless unless there come to him daily those personal satisfactions in both labor and leisure that constitute a full, rich life. Therefore, it is necessary continually to keep an eye upon the social structure to be sure that it is increasingly the kind of socio-economic organization that promotes both a good living and a good life for all. Youthful prospective teachers and youthful prospective parents will do well to seek such scientific knowledge of human development as will aid them in extending the democratic way of life, remembering that one of the main avenues to democracy is through forms of social organization that widen the area of common interests voluntarily shared by the diverse individuals making up the community. While the end or

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[6] For an analysis of some problems involved in the American interpretations of democracy, see Boyd H Bode, *Democracy as a Way of Life*, The Macmillan Company, New York, 1937, and William Bruce, *Principles of Democratic Education*, Prentice-Hall, New York, 1939

goal of all democratic education is the optimum development of each individual, the means thereto is group living in social organizations, such as the family, the school, and the community Individual development is achieved through social living.

PART II

Scientific Studies of Human Development

II

THE BIOLOGICAL BASIS
OF BEHAVIOR

As Revealed in Prenatal Growth
and in Infancy

EVERY TEACHER or parent who is concerned with
the growth and development of immature individuals
into healthy, happy, intelligent, cooperative citizens of our
democracy faces a number of practical questions about the
biological basis of behavior. Whether you are looking at a
tiny, red infant fast asleep, or an active, laughing five-year-
old, or a vigorous boy or girl of ten years, or a rapidly matur-
ing adolescent, you wonder what limitations upon intellec-
tual and social development lie in the biological equipment
of body and brain possessed by this individual. You ask your-
self Does this immature human being have the physical
assets that will make it possible for him to become a con-
tributing member of a democratic society, sharing effectively
in mature activities and planning intelligently with his
neighbors for community living? Such uncertainties are most
likely to occur to the thoughtful person when he looks at a
helpless infant. Before this youngster becomes a "beginner"

in the elementary school, his behavior has given the discerning student of childhood a partial answer to many a fundamental question Nevertheless, most of us who guide young Americans, continue to wonder, even about adolescents, whether their achievements represent the full power of their bodies and brains Accurate scientific knowledge of biological heredity, of early physical growth, and of the beginnings in motor coordination gives a basis necessary for clear thinking and intelligent practice concerning human development at any level from infancy to adulthood.

In the first place, the student of human development needs to set aside, as completely as he can, every persisting superstition concerning humanity that has been carried down to our own day from the prescientific wondering of primitive man about himself and his universe. The descendants of early man eventually posed two questions. What is the origin of humanity? What is the ultimate destiny of man? Many diverse answers have been formulated in the different groups that have inhabited the earth. These answers have become entangled, on the one hand, with man's strivings for moral improvement through religion and philosophy, and, on the other, with attempts to describe man's development scientifically and objectively. Both social outlook and scientific investigation are still retarded by the superstitions of past ages In general, the early answers made by peoples who had no knowledge of modern physical and biological science, or of social science and critical philosophy, took the easy road of inventing a supernatural source whenever a natural explanation was not evident. That is, they assumed that certain forces lay outside of natural conditions and that these forces were the real and ultimate sources of human behavior. Our early forefathers then went on to state their belief that these overruling, supernatural powers were also the controlling factors in human development and destiny. While today most students of education turn directly to scientific descrip-

tions of natural and social conditions without much thought
of these old speculations, no one can afford to be unaware
of inclinations within himself to lean occasionally upon
vague, prescientific assumptions, when he should be making
a rigorous study of the demonstrable factors in human de-
velopment and be building an appropriate educational pro-
gram

As will appear in later discussions, teachers and parents
need also to avoid many prejudices derived from their own
childhood experience and from their adult interests that in-
cline them toward overemphasizing certain aspects of de-
velopment, or toward neglecting other aspects, and that often
lead them into misconceptions of child behavior. Certainly,
the student in these times must add to his scientifically ob-
jective attitude a full sharing of responsibility with the think-
ers of earlier generations for setting up and moving toward
social outcomes and ideals, especially when he considers how
much more favored he is than were his forefathers with wide
sources for a sound, scientific understanding of human
growth and education.

Overemphasis on Heredity in Early Studies

One step toward a more scientific view of man's develop-
ment was made in the nineteenth century through the great
intellectual struggle over the theory of evolution Significant
enlightenment came with the publication in England, in
1859, of Charles Darwin's *Origin of Species* and, in 1871, of
the *Descent of Man* by the same biologist. Writings in this
field eventually turned the attention of the general public,
as well as scientists, toward biological explanations of man's
progress and particularly toward the processes of heredity.
The tracing of racial strains and family trees became the fad
of the day, while the biologists and anthropologists searched
the earth for the skeletal remnants of a "missing link" that

would connect man more directly with his distant cousins, the anthropoid apes Although the evidence from fossil man concerning the sequence of the various forms is not yet clear,[1] there has resulted a fundamental change in thinking about human development, so that the animal origin of man has become a topic of guided discussion in some elementary schools even among second graders. Since the time of Darwin a long stride has been made toward man's scientific understanding of himself.

The concentration upon the study of human heredity, which flowed from the "fiery ordeal" that Darwin found his *Descent of Man* undergoing,[2] was reinforced by the work in genetics of an Austrian monk, Gregor Mendel (1822-1884), who experimented notably in the growing of garden peas until he could predict and control the length of stem and other characteristics. Mendel and his successors, by breeding experimentally in a relatively short time many generations of plants and animals in which the matings were rigidly controlled, discovered certain facts and principles of heredity. These "laws of heredity" led in turn to many definite statements—some pessimistic and some optimistic—concerning the future of the human race Indeed, the proposals relating to the mating of human beings, which were derived from experiments ranging from those with peas through fruit flies to guinea pigs, almost obscured for the time being the possibilities that still lay in teaching boys and girls by the modification of the environment in the community, at home, and at school Now that the scientific evidence has been sifted and organized, however, there remain a few important facts and principles that pertain directly to the problem of guiding youth.

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[1] Earnest A Hooton, *Apes, Men, and Morons*, G P Putnam's Sons, New York, 1937, Chapters 8 and 9
[2] See Preface to second edition of Charles Darwin, *Descent of Man*, 1874

Unpredictability of Individual's Characteristics

These facts and principles of human heredity that bear upon educational guidance can be stated briefly One of the chief facts is that the complexity of the mechanisms involved in human inheritance makes impossible any very certain prediction concerning the kind of biological equipment a *particular* infant will have at birth Not even so simple a characteristic as eye-color can always be predicted absolutely before the birth of a child, although the "chances" that hold for large numbers of children may be calculated. Both the father and mother may have brown eyes, yet the child's eyes may be blue The hair of both parents may be dark but the child's may be light in color Both parents may have the kind of brain, nervous system, and general bodily organization to make them bright, but the child may have defective biological equipment that keeps him dull throughout his life in spite of expert teaching Or the reverse may be the case relatively dull parents may produce a child much brighter than themselves In other words, no geneticist, even with a complete family record for generations, can predict more closely than probabilities permit the kind of human potentialities that will be produced by a certain mating

Furthermore, the several children of a family (except identical twins) will have different biological equipments with which to begin life, because each is the outcome of different combinations of hereditary materials coming from their parents So the fundamental discovery of science, which every parent and teacher must face, is that the child will not be like his parents and siblings (brothers and sisters) in all respects, and in fact may be very different from them, his characteristics of body, with a few exceptions, and of mind cannot with much certainty be predicted from a knowledge of his parents, grandparents, and other relatives. "Like produces like" is a misleading half-truth. Each child must be

studied as a *unique individual* by means of the behavior through which he reveals himself from the day he is born This negative conclusion concerning prediction implies the positive necessity of thorough study of the young individual by all his guides and their individualized treatment of him

The biological explanation of the unpredictability of the baby's characteristics has been set forth in recent years in terms of the *genes,* which are tiny particles within the germ cell's chromosomes, too small to be seen even with the strongest microscope. When the life of a new individual begins by the union of a sperm cell with an ovum, each parent has transmitted thousands of genes arranged in an orderly way in strings within the *chromosomes.* Each gene from the male parent unites with the corresponding gene of the female parent. The set of genes in each sperm cell is somewhat different from the set in any other sperm cell, and a similar diversity occurs between the sets of genes in different egg cells. As a consequence of the union of diverse sets of genes, each individual starts with a different set of materials and must be different in some respects from his brothers and sisters, and from his parents, and from all other persons throughout life. Of course, an exception must be made again of identical twins who are produced by the division of a single fertilized ovum. The fact that the number of genes in a single cell runs into thousands indicates the mathematical possibilities of diversity in the millions of human beings, possibilities which are augmented by the combination of diverse sets of genes from the two parents. Thus the heredity mechanism insures individual differences rather than "like producing like" in any exactly predictable degree. Although the genes operate in well organized ways, the combinations are so complex in the human species as to defy prediction in individual cases.[3]

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[3] Herbert Spencer Jennings, *The Biological Basis of Human Nature,* W. W. Norton and Company, New York, 1930, Chapter 1

Family Resemblance and Environmental Factors

Although geneticists cannot state in advance the characteristics that a particular individual from a certain mating will have, there are many scientific data supporting certain degrees of family resemblance When large numbers of children are compared with their respective parents and with their brothers and sisters in mental ability, the *general* finding is that the resemblance is marked, whereas any similarities in the members of a random population would be a matter of mere chance. The degree of resemblance in the former instances is represented by the correlation coefficient, 50 The degree of similarity found between parents and children and between brothers and sisters varies, in different studies, from a correlation coefficient of .30 up to .70 indicating, in the former case, a weak resemblance in the trait measured, while in the latter case the resemblance, though by no means perfect, is very marked indeed Degrees of similarity are due, however, to the interacting factors of heredity and environment, because children grow up usually in the *same* home with their parents and their brothers and sisters, thus being affected by some *similarity in physical and social environment* as well as by some similarity in biological heredity.

Furthermore in the case of fraternal twins, who, like ordinary siblings, are produced from different gene combinations, the resemblance in general ability is greater on the average than for non-twin siblings, the correlation coefficient in the case of the former being generally about .70 as compared with .50 for the latter This fact is credited to the greater similarity of environmental effects of the prenatal and postnatal periods of development upon the fraternal twins as compared with the diverse effects of the prenatal and home environments upon the children of different ages. When such studies are made of identical (monozygotic)

twins, the combination of the factors of identity in the gene combinations with the factors of similarity of prenatal and postnatal environments from year to year gives a still greater similarity in behavior represented by a correlation coefficient about 85, which, though not perfect, is indicative of a very close resemblance in the trait measured.[4] Additional light is thrown upon the interplay of hereditary and environmental factors when studies are made of identical twins reared in different foster homes, for the degree of similarity in one or more traits is often reduced significantly by the differences in environment.[5] Conversely, one careful study contains the comment that "unrelated children in the same home resemble each other fully as much as do brothers and sisters who are in different homes."[6]

The sum of the matter is that *average* family resemblances in behavior are due to the joint effects of similarities in both hereditary constitution, on the one hand, and physical and social environment on the other. Predictions, which are based upon general trends, even when both nature and nurture are considered, *cannot specify in advance the outcome in any individual case.*

The Stable Distribution of Ability

Another area in which science can make substantial *general* predictions is concerned with the distribution of intelligence in the whole population. In a large group of unselected children relatively few will be extremely dull, and relatively few extremely bright, about ten percent of the whole group

[4] Frank S Freeman, *Individual Differences*, Henry Holt and Company, New York, 1934, Chapter 3

[5] Horatio H Newman, Frank N Freeman, and Karl J Holzinger, *Twins, A Study of Heredity and Environment*, University of Chicago Press, Chicago, 1937

[6] Frank N Freeman, Karl J Holzinger, and B C Mitchell, "The Influence of Environment on Intelligence, School Achievement and Conduct of Foster Children," *Twenty-seventh Yearbook of the National Society for the Study of Education*, 1928, Part I, Chapter 9

will be classified as just dull, or slow, another group of similar size will be designated as bright; while more than half of the total will be close enough to the average or middle point of concentration to be classed as "normal" in ability Similar distributions representing wide variety and divergence are found in the measurement of other psychological traits and physical characteristics as well. In other words, the quality of bodily equipment—including brain, sense organs, muscles, and glands—will be distributed over a wide range with *mediocrity* the most common quality. Consequently, the new teacher of the third grade, for instance, or the high school specialist in mathematics or music may, under ordinary circumstances, reasonably expect variety and distribution in the quality of his pupils, except that under prevailing practices of promotion some of the duller children never reach the upper elementary grades or the high school.

Parents especially need to realize that although the family group of children may be small, the range in quality of inherited equipment may be wide. Even if there are but two children in a certain family, one of them may not be able to do nearly so well in school as his brother or sister who has preceded him, or, on the other hand, he may be able to do much better The fundamental significance of individual differences should not be obscured by the averaging of certain qualities, nor by the concentration of numbers near the average quality, nor by the fact that *on the average* brighter children will be produced by bright parents than by the same number of pairs of dull parents

The individual child still remains a question mark *after* the teacher knows his parents and *until* his own behavior under favorable conditions demonstrates his limitations and assets. Since the individual continues to grow in physique, sensory and motor capacities, and intellectual capacity through his elementary and secondary school life, the understanding and appraisal of the individual is never completed

by any teacher, although the cumulative record of his achievement and personal characteristics should make each pupil better known for every year he continues in a modern, record-keeping school system (See Chapter IX)

Man has progressed. Likelihood of further progress through education is supported by other scientific investigations that reveal a persisting stability in the human race *as a whole* The rate of change in the *fundamental biological equipment* appears to be extremely slow over the generations. The evidence gathered shows that no substantial change has occurred in the biological potentialities during the twenty-thousand years of man's bodily history that have been investigated by anthropologists and biologists. Although amazing evolutionary changes have taken place during the millions of years of life on this earth, there is no indication that educators may expect any significant improvement or decline, as far as basic biological equipment is concerned We have no better brains to begin with, on the average, than our great-great-great grandfathers. Furthermore, a distribution, though probably of different proportions, from very dull to very bright would be found even if all the children came from parents who make up the poorest one-fourth in respect to quality of body and brain. Any quarter of the human population, in the long run, will produce children covering the range of distribution from the very dull to the very bright [7]

At present about three-fourths of the children who are above average in ability come from families of relatively mediocre and low incomes. The complexity of human inheritance through diverse gene combinations keeps the race from declining in original equipment and also closely limits the possibility of rapidly improving the quality by any plan of mating the geneticists can thus far offer. Even if a dictator

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[7] Herbert S Jennings, *The Biological Basis of Human Nature*, pp 220 f

should begin enforcing the most rigid and scientific system of mating, our great-great-great grandsons, as a group, would have no better brains on the average than we do, so far as science shows today The much more practical and feasible procedure would be to provide all individuals, from infancy onward, with optimal conditions of development

These facts concerning the continuance of practical stability in quality of biological potentialities constitute a firm biological basis for human development These facts also suggest to adult guides their heavy responsibility for producing *improved* development and behavior with the *same* kinds of human materials The further fact that at the present time larger families are found more commonly among the less prosperous and less educated sections of the population throws upon the public school and other public agencies particular responsibilities for overcoming certain cultural deficiencies of the homes of the majority of American children All these facts may lead the parent and teacher to ask Can human nature really be improved under present conditions? Can the next generation be healthier, wiser, calmer, and kindlier, more democratic than the present one? The answer is to be found in studies of the effects of the physical and social environment, since no substantial change is to be expected for many generations, if at all, in the biological inheritance.

Rate of Growth. Prenatal and Postnatal

Having gleaned a few important general principles from the investigations of hereditary mechanisms, the student of human development turns toward infancy for further enlightenment Tracing the methods of growth and motor development in the individual from the earliest stages will reveal principles that apply to later stages Indeed, this study of biological development must begin some nine months before birth with the fertilized egg cell The Orientals who cele-

brate the first anniversary of the child three months after
his birth are closer to a significant date in child development
than the Occidentals who recognize only the first birthday
anniversary Turning back then to the beginning point in
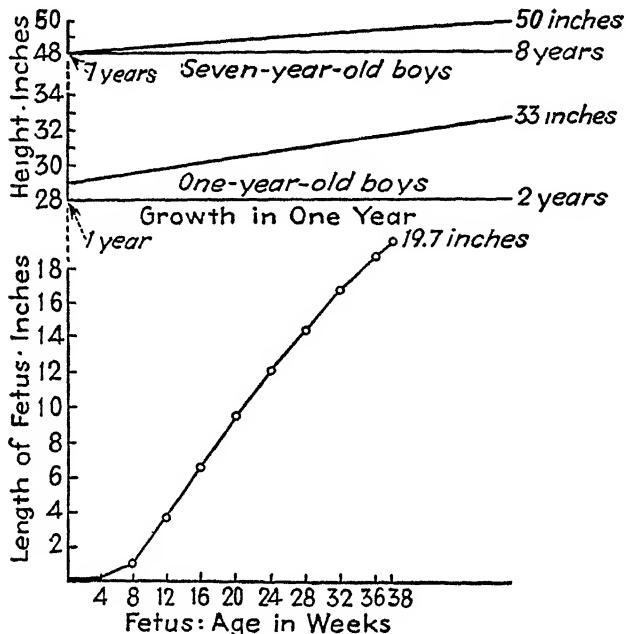
FIGURE I—Comparison of Average Rates of Growth in
Height at Different Stages of Development Fetal Period,
Second Year, and Eighth Year From the fourth fetal week
to the thirty-eighth, the organism has grown about 19 inches,
from the age of one year to two years, the infant has grown
about 4 inches, from the age of seven years to eight years,
the child has grown about 2 inches The different slopes of
the curves reveal these differences in rates.

the human individual's life—to the day on which the sperm
unites with the ovum—we find that extremely rapid growth
ensues. In fact, the very early growth in the first few days is
so rapid that if it continued at the same *relative rate* for
twenty years one individual might not find enough food on

the whole earth to sustain himself Fortunately the rate of growth gradually decreases. Between the end of the first month and the end of the second month the fetus multiplies its length about twelve times, during the third month the fetal length still trebles, while during the fourth month the
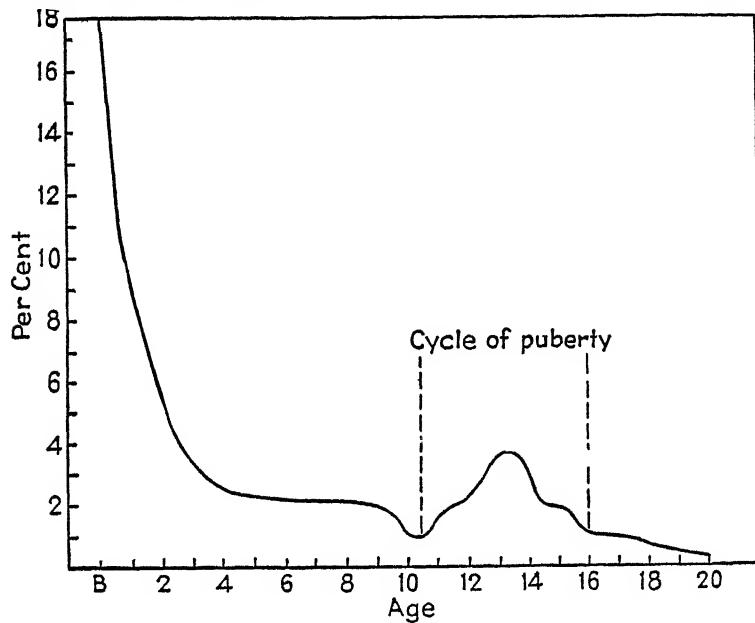
FIGURE II —Schematic Curve Changes in velocity of growth of boys from Birth to Twenty Years Percent Increase each Six Months (Curve supplied by Dr Herbert R Stolz, Research Associate, Institute of Child Welfare, University of California) A drop in the curve shows a decline in velocity of growth Conversely, a rise in the curve shows an increase in velocity of growth Stolz apparently places start of puberal cycle at point where rate of growth accelerates, prior to appearance of body changes characteristic of sexes at puberty.

length is only doubled; and in the eighth month the increase in length is scarcely one-seventh beyond that at the beginning of the month This decreasing rate of growth during fetal life suggests the form of growth curve that continues during the first years after birth. If the individual grew in the months and years succeeding birth with the same average

absolute increments per month as between the sixth month
of fetal growth and birth at nine months, he would still be-
come at the age of twenty years a monster about fifty-five
feet tall. A comparison of the growth curves in Figure I
shows the difference between the relative rate of growth in
the fetal period and that in early and middle childhood

Another way of visualizing the fact that we grow faster at
some times than others is presented in the schematic curve
of changes in velocity of growth given in Figure II This
curve shows a fairly high velocity in the growth of boys dur-
ing the preschool period, but a rate that gradually diminishes
to a considerably reduced and relatively uniform rate during
most of the elementary-school years, followed by accelerated
growth during part of adolescence, and finally by gradual
reduction in velocity until the young man reaches his full
growth at about the age of twenty. These modifications in
velocity of growth occur in as diverse features as length of
leg, shoulder and hip width, and muscular strength.

Patterns of Differentiated Development

Turning from studies of the rate of growth to consider
the pattern of growth, we find that recently biologists have
made many studies of embryonic development in various
animals from lower forms up to those higher animals closely
related to man, and these have been supplemented through
examination of the structure and in some cases the motor
behavior of operatively removed human fetuses Since there
is great similarity between man and the lower animals in
developmental processes and even great resemblance at an
early stage of the embryos of fish, salamander, tortoise, chick,
pig, calf, and rabbit to human embryos, studies of the lower
animals are significant in the understanding of human de-
velopment. These scientific investigations show, in the first
place, that the growth, division, and multiplication of the

original fertilized cell follows a sequential pattern according
to the particular animal group—fish, bird, amphibian, mammal
This pattern of development is not determined, as was
formerly supposed, directly by the hereditary materials alone,
but by general influences operating with the whole organism
and thereby producing such differences as those between
skin, ear, brain, and spinal cord

These general *differentiating* influences apply differently
to cells that are in different positions. At an early stage, before
this differentiating influence has proceeded far, a group
of cells that would have become an eye in the original position
may be removed to another position where they become
skin tissue, or to still another part where they become spinal
cord Such experiments with the embryo of amphibians
prove that environmental factors of position within the organism
participate with the hereditary materials in guiding
the process of development. Thus the fact becomes clear that
at the very beginning of life heredity alone does not predetermine
the pattern of growth, for the whole body may
influence the growth and development of any part. These
studies may help the student to avoid many a misconception
that heredity is the sole and direct influence upon the growth
and behavior of children [8]

Genetic Method and the Meaning of Potentiality

The method of studying child development, which we are
beginning to employ in this chapter, consists in tracing the
stages of growth in order to learn from month to month and
year to year what changes are likely to occur as any child
grows older, namely, what the developmental sequence is.
This procedure is called the *genetic method,* which means
that it seeks "beginnings"; but the term does not refer to the
study of "genes" or other hereditary mechanisms except as

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[8] Herbert S Jennings, *The Biological Basis of Human Nature,* Chapter 3

these specialized materials participate in the earlier stages of growth The genetic method shows how one stage follows another and suggests explanations of the emergence of new activities and abilities from time to time

In this connection, the scientific student of development tries consistently to avoid what Gesell calls the *error of potentiality,* that is, the false assumption that events of one developmental stage are in any way mysteriously wrapped up in another and earlier stage. For example, although the sequence of motor development is such that many children are able to stand at about fourteen months and take their first successful walking steps alone about a month later, we do not say that the walking is wrapped up in the standing, even when we clearly recognize that a child must stand alone *before* he learns to walk, and that standing *contributes* to walking The word "potentiality" can be used scientifically to represent possibilities of behavior that will develop as the child matures, if he is surrounded by the appropriate environmental conditions. Such possibilities are not predetermined nor caused by mysterious "instincts," but are the product of the various bodily organs functioning in an organized way by means of the nervous system, which relates their action to the environmental factors. Properly used the term "potentiality" emphasizes the value of the genetic method that lies in revealing *why* a child of five behaves as he does, and thereby *how* to modify his behavior at this age or to promote or forestall particular forms of behavior at an earlier age in younger children. These advantages of the genetic method constitute reasons for the sequence of chapters in this book, beginning with the present one centering upon infancy and continuing through early childhood to those concerned with the ten-year-old and with the second decade of life.

The *genetic method* is sometimes contrasted with the *cross-sectional method* of child study. The latter method at-

tempts to describe the various physical, intellectual, and social characteristics of a "typical" child at five, ten, or fifteen years of age, while the former describes succeeding stages of development Chapter VI on the ten-year-old will represent the cross-sectional method, but for the present the discussion will follow the principles of the genetic method

Pioneering in the Study of Child Development

The great pioneer in the use of the genetic method for child study was Wilhelm Preyer, professor of physiology at the University of Jena In 1882 he published an outstanding day-by-day biographical record of a young child's reactions in his earlier years [9] We quote from the Author's Preface to the First Edition (Pt 1, p. x) to emphasize Preyer's leadership toward the modern point of view

> But great as is the number of occasional observations in regard to many children, I do not thus far know of diaries regularly kept concerning the mental development of individual children Now precisely this chronological investigation of mental progress in the first and second years of life presents great difficulties, because it requires daily registering of experiences that can be had only in the nursery I have, notwithstanding, kept a complete diary from the birth of my son to the end of his third year Occupying myself with the child at least three times a day—at morning, noon, and evening—and almost every day, with two trifling interruptions, and guarding him, as far as possible, against such training as children usually receive, I found nearly every day some fact of mental genesis to record

The inspiring work of Preyer taken as a whole illustrates

[9] Wilhelm Preyer, *The Mind of the Child*, Pt 1 *The senses and the will* Pt 2 *The development of the intellect* (Translated by H W Brown, teacher in the State Normal School, Worcester, Mass) D Appleton and Company, 1888, 1889 The student may well examine first the "Conspectus of Observation" prepared by the translator, which gives a month by month summary of the results Pt 2, pp ix-xli

also the significant relations between the study of child development and of development in the lower animals No doubt Preyer's biological studies and techniques as well as his strict adherence to scientific method guided him in the field of child study, while it may be that certain reactions of the infant suggested further inquiry and experimentation in the biological field Think, for example, of the great physiologist at noon on a certain day recording in his child-development notebook the first smile appearing on the baby's face in the fourth week after birth, while in the afternoon of the same day he may have begun his pioneer drawings of the positions and movements of frog embryos just before emergence from the egg. Thus from day to day while Preyer divided his time between the biological laboratory and the family nursery, his thinking concerning development upon the lower and higher planes was more or less unified Sometimes he only contributed suggestions that years later came to fruition in the laboratories of other scientists For instance, he pointed out that *behavioral development* had not been recorded accurately either for infants or young chicks. This suggestion of Preyer's concerning chicks, made in the 1880's, was not answered until fifty years later, in the 1930's, when Z Y. Kuo presented evidence from substantial studies of chick development that in turn had a heavy bearing upon controversies concerning the functioning of the nervous system in human learning This illustration of the eventual completion of the cycle of study from the lower animal to the highest may stand as typical of the light that is continually being thrown upon human development by the discovery of similar processes in other animals Again Preyer's studies of fetal movements in guinea pigs led him to characterize these movements in virtually the same words—unregulated, non-coordinated, non-rhythmical—as were used in the 1920's by M. Minkowski in describing early human fetal movements. It appears, then, that Preyer's outstanding con-

tributions to child development were twofold in character
He contributed *indirectly* to the understanding of human
development through his laboratory experimentation as a
biologist, while in his diary of a baby he also made a great
direct contribution to the biographical-longitudinal, or ge-
netic, method which has since become one of the important
techniques for the study of individual development.[10]

Differentiation of Motor Behavior Prenatally

The genetic approach in the study of development and
behavior evidently begins in the prenatal period. Mothers
report the first perceptible sensation of movement by the
fetus in the middle of the pregnancy period, although the
heart beat begins as early as the third prenatal week The
principle of *gradual differentiation* in behavior is apparent
much as it was in early embryonic and fetal development
Studies show that mass movements of the whole fetal body
come first and that differentiated, separate movements of
arms, legs, and head come later. In the early stages, a stimulus
applied to one part of the body leads to movements of all
parts, in later stages the stimulus is more likely to cause
movement primarily in the part touched This gradual
change toward more limited, differentiated movement, which
corresponds with the results recorded for subhuman verte-
brates, suggests the process and principle of motor learning,
which is to be found in later life. crude, awkward, mass
activities are succeeded eventually, as maturation and prac-
tice go on, by the development of refined, skillful, specific,
appropriate movements For example, the squirming, arm-
waving, and leg-kicking infant becomes at about eighteen
months an awkward, wide-straddling walker and by four

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[10] For further light on Preyer's varied studies see *Handbook of Child
Psychology*, Carl Murchison, editor, second edition revised, Clark University
Press, Worcester, Mass , 1933, especially pp 236 *ff*

years a more skillful, better balanced but still shuffling walker Although the pattern of prenatal development of motor behavior does not determine the way in which motor skills will be learned in childhood and youth, sufficient similarity is evident to establish a sequential relationship between motor development before and after birth, and to provide evidence of an important principle of development namely, differentiation.

Significance of Birth as a Developmental Step

Although birth is a critical event in the individual's life history, it is at the same time one of the steps in the entire developmental process. Aside from the hazards of birth, the event is noteworthy for the fact that the individual begins his life in a new environment as a biologically separate being, and that he starts a phase of life, infancy, during which he is relatively helpless physically But he will rapidly develop those skills and activities that will make him a more and more independent psycho-biological organism in his society To understand the significance of infancy in the human growth sequence, consider that the degree of maturity at birth differs greatly even among mammals, guinea pigs and kittens, for example, are much better equipped with responses at birth than are opossums and human babies. Thus any type of activity, such as walking, may be attributed in one case to growth and development in the uterus, while in another animal the external environment, as well as the biological development, apparently contributes to the same activity In human infants, comparative immaturity at birth is associated commonly with the long life-cycle of the organism, requiring approximately twenty years to reach adulthood, in contrast with the few months or years needed in most mammals This long period of immaturity presents tremendous opportunities for modification of the organism's

development and behavior through optimal conditions and learning, while, on the other hand, it offers a long span of time and much opportunity for developmental and behavioral distortions and anomalies through unwholesome conditions of the physical and psychological environments

Birth, then, assumes its proper place as a major event in the growth sequence rather than being regarded as an actual beginning or too sharp a break in the developmental process. Although the ordeal of birth involves, even under the excellent facilities provided by modern medical science, considerable risk for the child and a tremendous readjustment in living conditions, it results usually in a merely temporary retardation of growth. With normal birth and adequate care the neonate, or new-born child, regains its fetal weight in a week or two and goes on growing, developing some of his prenatal activities as well as new postnatal abilities. At birth he changes suddenly from the fetal to the natal type of circulation, he begins to breathe, his feeding and elimination functions become independent of the mother, and, very significantly, he enters a more complex and variegated environment. Successful birth multiplies the child's opportunities to learn new sensory, motor, and social activities, which constitute bases for intelligent behavior.

Misconceptions concerning Infant Behavior

The untrained person who looks at an infant in the neonate stage (arbitrarily defined as the period of the first month following birth) is in danger of forming any one of several misconceptions concerning his nature. Too often the infant has been regarded as a "man in miniature" with a "mind" into which subjective interpretations of behavior are placed by the observer, much as primitive peoples anthropomorphize the sea or the wind, attributing human purposes to an object or a force. The mother or the visitor bends over the

baby's crib and says "If he could only talk, he'd surely say . . ." Today, in trying to discover the characteristics of the neonate, instead of such speculations, experimenters make objective tests showing, among other things, that he is sensitive to change in the intensity of light, with pupillary reflexes better developed than convergence reflexes (coordinated fixation of both eyes on an object), that he gives facial reactions to the gustatory stimuli of sweet, sour, salty, and bitter, that extreme temperature changes produce shivering, other muscular activity, and crying, that his body is extremely active; that he sleeps about eighty percent of the time Thus rather complete records are being made of responses to the various sensory stimuli without intimating what the baby "thinks" about his experimentally inclined caretakers. These records show the essential continuity of behavioral development. At the same time they indicate the neonate's capacities and provide a starting point for the measurement and evaluation of development in subsequent weeks and months.

Another misconception, which arose in the nineteenth century and is still not uncommonly encountered, describes the infant and child's behavior as a "recapitulation" of his ancestors' behavior, especially that of his ape-like precursors, relying on the grasping reflex, for example, as evidence that the child had arboreal ancestors. The embryological sequence, which includes gill slits, is taken as proof not merely that man traces back through fishes to still more simple ancestry, but that his postnatal behavior is guided by "instincts" derived from his lower animal forebears. Darwin's hypothesis of "survival of the fittest" is used by those who accept recapitulation to account for and even to justify rivalry of children for school marks, cut-throat competition by businessmen, and war between nations. In contrast to this misleading view, not only do recent scientific studies show that exact recapitulation does not occur even in embryological

development, but also that the complex processes involved in the development of social behavior under intelligent guidance are not limited in any definite way by the evolutionary relationship of human animals to others lower in the scale. For, after all, the main point is that man has *evolved* What man *is* today and what he *becomes* in the future is not predetermined by what his remote ancestors were in the past [11] Since the future lies in the hands of the coming generation and its adult guides, these guides are responsible for choosing intelligently a way of life, such as the democratic, and for aiding children as they grow older to participate increasingly in interpreting and applying democracy to daily living.

A third misconception arose still later, at the beginning of the twentieth century, which involved an overemphasis on the mechanics of limited motor activities and resulted in viewing the infant as a "system of reflexes" The fact that such functions as natal circulation, breathing, and elimination are established by biological growth without apparent learning, and that the sucking response, the hand-grasping reflex, the pupillary reflex and many others are present at birth or very shortly thereafter led some scientists to reduce human behavior to the level of the reactions found in a frog after the cerebrum, or upper brain, had been removed On the contrary, the sucking response becomes in normal infants more specific and effective with repeated stimulations by the nipple over a period of a half-hour or more of practice. The well known grasping reflex of the neonate also varies with the general condition of the infant—not occurring readily when a bar is put into his hand soon after nursing or when he is sleepy. The pupillary reflex, by which the opening of the iris varies in size inversely with the intensity of the light, does not occur at the same age in all infants and

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[11] See M C Otto, *The Human Enterprise,* F. C Crofts and Company, New York, 1940, Chapter 7

is not uniformly mechanical [12] Thus the more adequate studies of reflexes lead to the conclusion that these forms of muscular behavior are not so rigid and invariable as has been assumed. Furthermore, the reflexes that do become, after a time, relatively fixed modes of behavior, such as the pupillary reflex, are movements of small segments of the body and do not dominate, but merely assist, in more significant aspects of motor development during later infancy, such as drinking from a cup, creeping, and walking Without denying that certain reflexes, like the heart beat and breathing, are essential for survival, we conclude that reflex activities are minor aspects within the organized learning and behavior of the whole child The child's life is really filled with dynamic, non-reflex types of behavior all the way from smiling and babbling to the handling, tasting, looking, and listening activities that we group together under the term, curiosity. To the infant's biological needs and behavior soon will be added social needs and behavior, involving affection, security, and companionship, which reach far beyond the reflex level of reaction.

Instead of the misconceptions that arise from supposing the neonate to be a miniature adult, or regarding him as an organism recapitulating the activities of his ancestors, or as a mere system of distinct and separate reflexes, we must see that he is a developing organism that has reached a certain important early stage in his long career. In his behavior, he is still largely a generalized type of organism, whose activities are centered in the alimentary canal. When "hunger" contractions of the stomach begin, he gets irritable and most of his muscles go into action. If his cheek or lip is touched at this time, the infant will turn his head quickly toward the stimulation and his mouth may open. A visual, auditory, or

[12] Mandel Sherman and Irene Case Sherman, *The Process of Human Behavior*, W W Norton and Company, New York, 1928

other single sensory stimulus has slight effect when used alone Such a stimulus, when used in one of the quiescent periods, which occur in the latter part of the nursing process, leads to renewed sucking. When his stomach is filled, he goes off to sleep until the next hunger-feeding activity, and during this period, devoted mostly to sleep, muscular responses may be produced by various stimuli, if they are fairly intense. Although some of his movements are somewhat specific and limited to the parts of the body stimulated, many of the responses are generalized, rather diffuse movements of the whole organism, lacking skill and precision The direction of development as the infant grows older will be away from the generalized reaction of the whole body toward more and more specific movements of more limited parts of the body. While he continues to develop as a whole, unified organism, his behavior changes toward a wider variety of activities appropriate to diverse situations [13]

Beginnings of Control Mediated and Direct

The baby's reactions to his own changing conditions and to changes in the environment lead in two different ways toward a partial control of the whole situation From the first day of independent life onward his reactions, such as crying when hungry, cold, or wet, result in modification of the conditions through the *mediation* of the nurse or mother Without any "intention" on the part of the infant, his caretakers provide for his needs as his reactions call attention to unpleasant conditions. The other way in which every normal infant comes into some measure of control over the situation is through his own *direct* actions without mediation. Within a few months he is reaching out toward food and other at-

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[13] Karl C Pratt, Amalie K Nelson, and Kuo H Sun, "The Behavior of the Newborn Infant," *Ohio State University Studies, Contributions to Psychology,* 1930, No 10

tractive objects or pushing away disagreeable materials, while a few months later he begins to creep toward his objectives These intentional, self-directed activities are made possible through the nervous system, which coordinates the muscular movements and the environmental stimuli. Through the kinesthetic sense organs in the muscles and joints of the skeleton the infant feels his own movements, while his eyes, ears, nose, and other receptors stimulate and guide him toward old and new objectives Although it is essential that throughout life mediation be continued by a long series of personal relationships with parents, teachers, friends, employers, colleagues, it is most important that each individual in a democracy learn, beginning even during infancy, to participate in the control of his environment directly through his own activities It is a general principle that every parent and teacher must continually make decisions that properly balance mediation by the adult guide and personal, direct responsibility assumed by the learner. Human guidance involves teaching the individual to guide himself.

Prehension Illustrating Direct Motor Control

In the case of the infant, his gradual achievement of responsibility and control is shown in his response to and action upon his environment as maturation and activity progress This change is well illustrated by the gradual development of prehension (grasping) through the combined adjustment of visual and manual functions when a small pellet is placed on a table before him at succeeding ages. The norms obtained in the Yale Clinic of Child Development are outlined by Gesell: [14]

12 weeks pellet regard is nascent and insecurely estab-

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[14] Arnold Gesell and Helen Thompson, *Infant Behavior Its Genesis and Growth*, McGraw-Hill Book Company, New York, 1934, pp 172-184

lished infant may flex fingers, or abduct or adduct hand, no approach to pellet ordinarily

16 weeks fifty-percent of infants credited with regard of pellet

20 weeks three-fourths of infants perceive pellet and give regard active approach movements are increasing, one-fourth of infants make contact with pellet, but accidentally

24 weeks· nearly all infants give definite regard to pellet, immediate in six out of ten cases, active rather than passive in eight out of ten cases, momentary regard, though still frequent, is giving place to more prolonged and recurrent regard approach is directed, striving, and unilateral, very few touch pellet, though hand is coming closer, approach movements are crudely executed, fingers are in partial extension

28 weeks three-fourths of infants give sustained and consistent regard, nearly all contact pellet with hand as well as with eyes, significant improvement in reaching and adjustment

32 weeks consistent regard is nearly universal in two-thirds of the cases the thumb participates in the grasping

36 weeks more than fifty-percent grasp pellet between thumb and index finger, thumb opposition is more defined

40 weeks immediacy of regard is nearly universal synchronous flexion of index finger and thumb

44 weeks index finger extension still better defined, visual guidance displaces tactile

48 weeks picking type of grasp is yet better defined and more prompt, visual control is more precise

52 weeks focalization of the act of prehension comes to culmination

Thus the normal infant's maturation and activity go forward slowly but surely according to a predictable sequence through a total of twenty-one months of prenatal and postnatal growth, reaching a prehension achievement, which is

the forerunner of many essential adult abilities While the mother-teacher waits for this development to occur, she may realize how little direct teaching can be done, how much food, care, and stimulating objectives may contribute, and how the process of development, through maturation and activity, eventually promotes self-education.

Self-help An Evidence of Social Maturity

The significance for the child's whole life and for his personality development of the early instances of self-education in the motor field is emphasized by the important place such attainments are given in *The Vineland Social Maturity Scale* [15] This scale "provides an outline of detailed performance in respect to which children show a progressive capacity for looking after themselves and for participating in those activities that lead toward ultimate independence as adults " Under the category of "self-help, general," the list of items arranged in order of increasing difficulty suggests the nature of the child's progress in successive years. The normal infant, during his first year following birth, early grasps objects within reach, later rolls over, reaches for nearby objects, pulls himself upright, grasps with thumb and finger, and eventually stands alone, while the infant during the second year of life overcomes simple obstacles, such as opening closed doors, climbing on chairs, and using a stool for reaching and a stick as an implement Under the classification of "self-help, eating," the first year includes drinking from a cup or glass assisted and without drooling; while in the following year the sequential series includes mastication of food, drinking from a cup and glass unassisted, eating with a spoon, unwrapping candy. In the third year, the average child eats with a fork and later gets a drink unassisted, but

[15] Edgar A Doll, *The Vineland Social Maturity Scale,* The Training School, Vineland, New Jersey, 1936

does not use a table knife for spreading until he is six years cld "Self-help, dressing" is another category in which the development of motor skill and initiative are evidences of social maturity, beginning with pulling off socks in the second year, while the two-year-old child learns to remove coat or dress, later to dry his hands, and still later to put on a coat or dress unassisted. The three-year-old buttons the coat or dress and later washes his hands unaided, the four-year-old washes his face unassisted and dresses himself except for tying, but the average child does not go to bed unassisted until he nears his seventh birthday Such a standardized series of normal accomplishments shows that motor development is one important and inseparable aspect of an all-around development that includes intelligent perception, an emotional change from fear to courage, and the independence essential in social maturity Self-dependence and self-education are intimately related throughout life.

Maturation and Objectives in Locomotion

If we turn now to locomotion as another motor ability through which the child becomes an independent individual, we may ask "How does a baby learn to walk?" Our attempt to answer this apparently simple question will further clarify also the relations between inherited biological equipment and environmental conditions, between maturation and learning, between development and teaching Walking ability involves, again, muscular coordination throughout the whole body and adjustment to external conditions. As in prehension the eyes take the lead in the process At the end of three weeks they can be focused on an object if it is quite close, next in the predictable sequence comes increasing ability to follow a moving object with the eye, and by the twelfth week the baby has advanced toward the adult level in being able visually to locate an *objective* toward which

he may desire to move, although he cannot yet do so During this first quarter of a year the infant gains considerable ability on holding up his head to look around, while he is lying on his stomach As the weeks go by, motor control spreads downward gradually from the head region to the shoulders, arms, and trunk By five months the normal infant has learned to sit up, but not till then does the maturing control of the legs begin to be evident Soon he ceases merely to kick when held with feet touching the floor, but straightens his knee joints and plants his feet firmly, thus indicating a growing control of the leg joints and muscles. Now the baby, when lying on the floor, commonly begins to pivot on his round belly toward objects which he sees and toward which he may now point or which he may touch, using the index finger functionally separated from the other fingers. Between nine and eleven months the baby gains ability to stand by holding on to furniture, to creep or scoot, and to walk when holding tightly to his mother's hand. Eventually, the varied practice involved in these several accomplishments leads the child to attempts at walking alone at about fifteen months and to reaching the objective which he sees in the distance and toward which he points with his finger, whether it be the sheen of a brightly colored toy or the friendly hands of father or mother. The erect posture and locomotion characteristic of the human being constitute significant achievements of the whole body based upon the growth and activities of twenty-four months since individual life began prenatally.

What can the parents do in teaching their baby to walk? Not much directly; very much indirectly. They provide him with appropriate nourishment—for a first period within the mother, for a second period within the family. Thus the body grows larger and stronger according to patterns that belong at first in common to mammalian and later more specifically to human development. Furthermore, after birth the

family can provide environmental conditions consisting of wide, clean floors on which to kick and creep, attractive objects to reach for, scoot toward, and handle, strong furniture and helping hands to which the child may cling, but not beyond the time when he should begin to walk alone. The child's guides must wait for his maturation and at the same time recognize advanced stages as they arrive. The guides must allow him to follow the well-nigh universal sequences of infancy from eye-coordination and head-rearing to standing-with-help and walking-when-led. The fundamental sequence cannot be rearranged, and development is more apt to be retarded than accelerated by attempts to guide in activities for which the individual is not yet ready anatomically and physiologically, if the accelerated process is attended by unfortunate emotional experiences due to frustration and interference with other activities within the child's range. But when he is *ready,* the baby learns to walk for himself through his own stumbles and tumbles—not through instruction nor through holding his hand. At this age, and perhaps at later stages as well, "teaching" consists mainly in providing environmental conditions appropriate for the learner's growing needs and encouraging permission for him to use them actively, while protecting him wisely all the time from the dangers that threaten babyhood.

How far locomotion, as an evidence of progressive maturation and social independence, reaches into the later stages of human development is suggested by referring again to *The Vineland Social Maturity Scale.* The normal child who, in his sixth year, goes to school unattended is the forerunner of the average child in his tenth year who goes about his home town freely, and of the nearly mature individual of eighteen who goes to distant points alone, making his own arrangements successfully. Throughout this long period the adult guides should consider carefully the increasing degree

of responsibility that it is necessary to grant the young individual in order to insure his full development

Maturation and Training in Stair Climbing

The relation of maturation to training has been demonstrated at the infancy level in an experiment by Gesell and Thompson on stair climbing, comparing identical, or monozygotic, twins [16] These twins did not differ in strength and ability, although such difference is frequent in monozygotic twins due to differences in position and nourishment before birth in spite of the identity of the sets of genes from which they develop. The equality in ability was established by tests in which the twins reacted in almost exactly the same way to the handling of pellets and to more difficult problems of manipulation previous to the beginning of the stair-climbing experiment Twin T was "trained'" extensively, while twin C was used as a "control" for comparison, not being trained so early or so extensively The experiment attacked the question Is early training effective in stair climbing—and in other activities? T was trained daily in stair climbing for a period of six weeks from age 46 weeks to age 52 weeks C was deprived of all specific training in stair climbing until the age of 53 weeks, when she was trained for a period of two weeks only At 52 weeks, after six weeks training, T climbed the five treads in 26 seconds. At 53 weeks, without previous training, C climbed the five steps in 45 seconds. After two weeks training, at the age of 55 weeks, C climbed the stairs in 10 seconds Thus *two* weeks training *at the appropriate stage of maturity* produced results superior to *six* weeks training begun seven weeks earlier It must be added, however, that a little later, at the age of 56 weeks, the two twins C and T were *equal* in stair climbing ability, and they again

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[16] Arnold Gesell and Helen Thompson, *Learning and Growth in Identical Infant Twins,* Genetic Psychology Monographs, vol 6, 1929, 1-124

proved to be equal in ability when retested at the age of
79 weeks. It appears from these results that before beginning
specific training in a particular activity, the adult guide must
balance the necessity of waiting for the appropriate stage of
development to be reached through the interaction of growth
and incidental supporting activities against the acceleration
of development provided by the earlier, systematic training,
even though the latter was less economical of time This
means that the process of maturation *together with* the ac-
tivities pursued result in development Consequently, the
teacher's problem becomes that of determining *experiment-
ally* for *each individual* the appropriate time to begin such
activities as reading, writing, decimal fractions, and a multi-
tude of other activities. In making tentative decisions con-
cerning "readiness" for a new activity, the teacher will need
to know the child's history of interests and activities as well
as the degree of ability he has achieved in related activities
Again the teacher needs to make a careful adjustment be-
tween the contrasting dangers of frustration caused by start-
ing too soon and retardation of development due to waiting
too long.[17]

Factors Causing Diverse Rates of Development

The emphasis upon the stable sequential order of develop-
ment in motor abilities should not obscure the fact that the
rate of development in individuals shows great divergence
from the average or norm The causes that underlie these
differences in rate of motor development are not clear,
though the infant's health, weight, body configuration, and
sex may be involved, as might also the infant's geographic
location. Race comparisons in early motor development have

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[17] For further comment upon experiments in this field, see Edmund S.
Conklin and Frank S Freeman, *Introductory Psychology for Students of Edu-
cation,* Henry Holt and Company, 1939, pp 22 *ff*

shown great similarity in average ability Comparison of Negro and white babies shows the former to be slightly ahead in smiling, in holding the head erect, and in sitting up, while the white babies are a little ahead at seven months in locomotor activities of turning and rolling A study of Hawaiian babies including seven different racial groups showed no racial differences in walking age, but a comparison of all these Hawaiian babies with Iowa babies showed that the former were six weeks ahead in walking age The authors of this study attribute the difference to the warm, sunny Hawaiian climate, which affords greater opportunity for babies growing up in the freer out-of-doors Sex comparisons show that, on the average, girls in both Hawaii and Iowa walk about two weeks earlier than boys, which accords with the more rapid maturation of girls in many abilities from infancy to adolescence. The general tempo of mental development might in some cases be related also, for though the relation between rate of motor development in infancy and general intelligence is not close, it is positive Gifted children, as a group, walk about a month earlier than children of average intelligence, whereas feebleminded children, as a group, are almost a year behind average children in walking age. The correlation between rate of motor development and intelligence though positive and thus showing a mild general trend, is too low, however, to have much value for prediction of general ability in a particular case. Thus parents and teachers may expect variations in motor ability without being altogether sure what these differences signify for the future general development of a child [18]

In addition to optimum opportunity for activity, our discussion of development has assumed adequate nutrition and freedom from disease, for growth and development are seri-

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[18] Mary M Shirley, *The First Two Years, a Study of Twenty-five Babies* I. Postural and locomotor development II Intellectual development University of Minnesota Press, Minneapolis, 1931, 1933

ously affected by malnutrition and by illness Before birth, for example, iron must be stored up in the fetus to last during the period in which the infant depends for nutriment upon milk which contains no iron Also, among other things, during pregnancy the mother needs calcium-carrying foods to support the formation of the teeth and skeleton in the fetus After birth the problems of nutrition are multiplied, while the possibilities of disease are numerous. Optimum development means not merely average growth and freedom from disease, but a rate of growth that considerably exceeds the norms that have been set by mediocre conditions of care and development in the home [19] In addition every parent and teacher should remember that each child has his own individual rate of maturation to be discovered by giving him optimum developmental opportunities in every possible way.

Self-Directed Motor Coordination and Democracy

Returning, in conclusion, to the negative fact that the parent or teacher can do little for the infant by direct instruction requiring imitation, we emphasize the positive proposition that already the young learner is beginning to do things for himself intentionally and purposefully over a short range of space and time As Darwin noticed long ago, the early, apparently purposeless movements of the arms and legs are succeeded in later infancy by intentional movements toward objectives selected by the individual. Even in infancy there begins a type of self-directed motor coordination that may be interpreted as the beginnings of individuality and personal intelligence Even before he begins to speak, the human being has learned to select an objective,

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[19] Marion L Faegre and John E Anderson, *Child Care and Training,* Fourth Edition, University of Minnesota Press, Minneapolis, 1937, Chapters 3 and 4

to go after it, and to attain his goal This child of fifteen months now develops diverse social attitudes as he chooses to run toward one parent rather than the other, to back away from the stranger, or to approach a wide range of persons without fear of anyone. Thus biological growth, which seems to dominate infancy, really constitutes a broad basis for intellectual and social development

The possibilities and values of child study add other implications for democracy. When the student of human development has carefully observed the sequence of stages even in the motor phase from birth to walking age, he need no longer be confused by the superstitions that have too often obscured these biological processes Scientific studies and personal observation both aid the parent and teacher in their task of discovering the characteristics of each child whom they guide The evident necessity of studying each individual's growth and motor development accords with the principle of democracy that emphasizes concern for every human being and leads toward a desire to give all children whatever opportunity and care fits with their needs.

It will appear more clearly as we pursue other aspects of development that the child's biological inheritance and his motor development soon begin to contribute toward acquiring language, achieving the organization of emotions, and beginning the formation of social groups. In this whole complex process occurring during infancy and early childhood, the student must judge the degree to which the principles of biological growth and motor development followed are consistent with a social interpretation of democracy This social interpretation of democracy emphasizes the quality of personal initiative that supports a wider sharing of mutual interests and encourages social organization with leaders who are sensitive to the needs of all the members of the group. The scientific evidence that even physical growth and motor development are not predetermined specifically and

solely by heredity also makes evident the need of *choosing* a general *direction* for development. This necessity throws upon teachers and parents who choose the democratic direction the further obligation of interpreting democracy as clearly as possible and of testing and applying their interpretations daily in their contacts with children and youths Growth and motor development even in the early stages may become a sound biological basis for democratic behavior.

Further References

Chapter XIV of this book, entitled "Retrial for Motor Skill," presents methods of developing skills at later ages, and includes additional references on motor development

Gilbert, Margaret S , *Biography of the Unborn,* Williams and Wilkins, Baltimore, 1939
    Presents the facts of human embryology in terms of the chronology of the developing fetus Intended for the general reader or student with little biological preparation

Sanders, Barkev S , *Environment and Growth,* Warwick and York, Baltimore, 1934
    An analysis of evidence concerning the relative contributions of heredity and environment to physical development

Scheinfeld, Amram, *You and Heredity,* Stokes, New York, 1939
    Deals with the facts and principles of human heredity Written in a relatively non-technical manner for the reader unprepared in the subject of genetics

III

LANGUAGE: ITS BIOLOGICAL-
SOCIOLOGICAL BASIS

As Established During the First
Three Years

MAN OFTEN is characterized as the "talking animal"
or the "babbling ape." His oral speech, because it
enables him to communicate freely and precisely with his
fellows, places him so far above any other animal that it is
no wonder language was regarded during the long prescien-
tific era as a special, direct gift from the gods. In contrast,
the modern student of human development attempts to
trace as scientifically as possible the actual source of com-
prehensible speech. Two different but related questions im-
mediately occur. First, how did any meaningful language
with its diverse names for objects, actions, and qualities arise
out of natural animal cries in the dim, prehistoric past? Sec-
ond, how does an infant today pick up his native language
whether it be French, German, Chinese, or American? Al-
though the racial events in which language originated are
separated by many thousands of years from the individual
experiences we now observe in early childhood, the processes

are related closely enough to throw light upon each other and upon the whole problem of human development.

Babbling

Beginning with the nearer problem of the processes by which the young child learns to speak his native language, we have at hand a substantial body of evidence gathered in recent years. Fundamentally, talking has a biological basis similar to that of walking. Just as the infant in the first few weeks after birth waves his arms and legs indiscriminately, he likewise uses his intricate organs of speech in producing a variety of cries, grunts, and other sounds [1] These early vocalizations apparently are no more purposeful than his early arm and leg movements Nevertheless, such crude, unorganized activities, whether of limbs or of vocal organs, are necessary preliminaries to well organized grasping, walking, and talking. By the third month the normal infant is babbling a number of different syllable-like sounds, such as *ba* and *goo*. During this period these uncertain babblings are integral aspects of the baby's active play accompanying awkward but joyful reachings, perhaps toward a red ball or a rattle shaken before him. During the next three months much varied practice occurs, producing many new accomplishments by the sixth month Babies during this period commonly repeat various combinations in vocal play—*erdah-erdah*—much as they repeatedly pound the floor with any object grasped in the hand for the mere joy of the continued, noisy activity. Such playful repetition is a sign of immaturity that disappears in both the manual and vocal fields as the child grows older and seeks more specific goals by means of his actions In this connection, we find that the baby at six months usually does part of his babbling *at* his human com-

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[1] For a summary, see, for example, Norman L Munn, *Psychological Development,* Houghton Mifflin Company, Boston, 1938, pp 379-382

panions in an apparently social way just as he may follow
his mother's movements with his eyes and reach out toward
her with his hands [2]

The most significant discovery concerning the babbling
stage, however, is that the infant's repertory of vocalizations
is *wider in scope than the sounds made in any single lan-
guage* Thus in the baby's vocal play we hear sounds re-
sembling German gutturals and French vowels, which he
will drop as he learns gradually to restrict and refine his
vocalizations to accord with the language of his American
family and community. These accomplishments of the baby
at six months constitute a broad *biological basis* in the motor
ability of vocalization out of which communicative speech
may come It is to be noted, however, that all this variegated
activity of the vocal organs is quite incomprehensible to the
objective observer as verbal symbols, although the tone and
context may well give the sounds significance as indicators
of pleasure or displeasure In all probability the infant's
babblings at this age, while they express his emotional atti-
tudes, have much less meaning for him than do the reaching
and grasping that he does with his arms and hands, because
his motor development is further advanced, relatively, than
is his language. As the baby listens to himself, he is gaining,
nevertheless, more and more control over the sounds made.
Such control is achieved through the coordination of the
kinesthetic sensations, arising in the muscles of the speech
organs, with his auditory sensations. This complex percep-
tion and control in the speech field is similar to motor co-
ordinations achieved in the arms and hands through visual
and kinesthetic integrations The wide variety of vocal abili-

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[2] Dorothea McCarthy, *The Language Development of the Preschool Child,*
Institute of Child Welfare Monograph Series, No 4, University of Minne-
sota Press, Minneapolis, 1930, or by the same author, "Language De-
velopment," Chapter 8 in *Handbook of Child Psychology,* Carl Murchison,
editor, second edition, revised, Clark University Press, Worcester, Mass , 1933

ties involving a degree of organized control gives a firm
biological basis for the coming acquisition of comprehensi-
ble language

Maturation and Imitation

Often the attempts to explain the infant's progress in
speech as well as other aspects of development have relied
too heavily upon an assumed "tendency to imitate," or have
even supposed that an inherited "instinct of imitation"
guides the young child into grasping, walking, and talking
If the student should recognize that a tiny kitten can learn
to walk and mew in isolation from his feline relatives, he
may realize at once that in like manner a baby with his ap-
propriate biological equipment might as he matures rise to
a standing position and eventually walk on his two legs
without seeing a single human being demonstrate the proc-
ess [3] In the realm of speech, likewise, the scientific studies
of recent years agree that new sounds are developed in in-
fancy not by imitation but by the spontaneous, experimental
actions of the individual It is true that *after* the infant
learns by chance efforts to make a certain sound he may be
stimulated to repeat it when his parent makes it, just as he
is also apt to repeat his own vocalizations as he hears them.
There is little doubt that in the latter part of his first year
the infant's family may encourage effectively his vocal ac-
tivity by talking at him, especially if they *follow his lead.*
His advancement in variegated babblings depends, however,
in large measure upon the maturation, during the first year,
of his vocal organs and of those parts of the nervous system
that function in speech and in the perception and organiza-
tion of sounds. This maturation is supported at all times, of
course, by whatever movements and vocalizations he initi-

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[3] Arnold Gesell and others, *The First Five Years of Life,* Harper and
Brothers, New York, 1940, pp 67-75

ates A study by L C Strayer of identical twin girls, one
of whom was trained in vocalizations five weeks earlier than
the other, clearly showed the importance of maturation. The
twin trained later learned more rapidly and there was more
rapid elimination of doubling of syllables (like ba-ba for
ball).[4] In general, the infant may achieve in his first year a
wide variety of vocalizations without hearing a word in any
language, just as he may learn *by himself* to grasp, creep, and
stand up. We assume, of course, that the baby is not deaf
but can hear himself speak and is thereby stimulated to
varied vocalizations, just as his manual and locomotor ex-
periences lead him into further ventures. The biological
equipment constitutes a sufficient basis at the *beginning*
stages in all these cases without dependence upon a mysteri-
ous "instinct" of imitation nor upon specific methods of
teaching by any adult guide Yet the parents may well pro-
vide a physical and social environment that encourages
reaching, locomotion, and babbling freely.[5]

Transmission of Meanings in the Family
A Sociological Process

Emphasis has been placed thus far upon the similarity of
incomprehensible vocalization to other motor learnings; but
the learning of the comprehensible, native language is an
advanced step requiring distinctive processes While the
motor aspect of human speech depends upon a biological
basis, notably in the equipment of vocal organs having ver-
satile capacities, the meaningful aspect of speech depends

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[4] Lois C Strayer, *Language and Growth the Relative Efficacy of Early and
Deferred Vocabulary Training Studied by the Method of Co-twin Control*,
Genetic Psychology Monographs, vol 8, 1930, pp 209-319

[5] For further comment upon the Strayer study with reference to the func-
tion of environmental conditions, see Edmund S Conklin and Frank S Free-
man, *Introductory Psychology for Students of Education*, Henry Holt and
Company, New York, 1939, pp 22-28

upon a *sociological basis* consisting of an organized language used by the child's family and the community. The child who is to speak the American language effectively must grow up in a social group in which this form of speech continually flows The family is the stable social institution that usually transmits the national language along with many other forms of behavior to the child. As he hears certain words used repeatedly with certain objects and actions, he comes himself to use these sounds appropriately as symbols in much the same way as he adjusts his actions to the customary uses of objects in the family. For example, learning to use a spoon and to use the *word* "spoon" are aspects of an inclusive, single process of activity Consequently, educators regard language itself as a social institution, which continues from generation to generation, being much like the family and the nation, which are relatively permanent forms of social organization that may live on for centuries, although the members of each generation change. Learning to speak a language involves not only biological structure and function but necessarily also a continuing social process, and therefore differs from learning to walk upright, which may be carried on from one generation to the next through the biological processes of heredity that result in similar body structures

Before considering the actual acquisition of the native language, we need to turn back to an earlier stage in the child's life to see how the family life enables him to gain his early *meanings* without words As far as we can tell, the baby's first weeks of life after birth give him only vague, blurred impressions. He does not differentiate distinctly one visual object from another or this sound from that one, his environment does not constitute a clear pattern in which he may organize his activities While the pattern of his experience is still unformed, his well regulated family does present to him day after day a stable environment with a

fairly steady pattern of events that helps him to make a few appropriate adjustments, which may by courtesy be called simple meanings The mother is a recurring object that comes so regularly to him as to be distinguished soon from other persons and to acquire vague meanings, such as nourishment and care Later, if bottle feeding begins, the noise made in preparing the bottle may acquire a meaning for the baby that is indicated by the sucking movements he makes when this noise recurs at regular intervals Thus long before he says "mama," "bottle," or "milk," he has learned from the routine of the family many modifications of behavior appropriate enough to be called meaningful It is evident that the routine which makes the pattern of life stable for the baby is established by the family organization. The family, as a stable institution, *transmits* to the infant many *meanings without words* before language learning begins.

The acquisition of the native language may be seen as an extension of the wordless meanings of infancy Before the child begins to *say* words in the appropriate context, he *responds* to a few words much as he responds to non-verbal sounds made in preparing his milk bottle. This sequence from mere responding to actual saying corresponds to the fact that older children and adults respond to a wider vocabulary than they actually use in their own speech, but gradually they do incorporate into their active vocabularies many of the words to which they previously only responded.

Although fond parents often make claims for much earlier ages, it is generally agreed that children between the age of twelve and fifteen months begin to show an understanding of certain words by making appropriate behavior adjustments to them.[6] Again it is the family routine that promotes these early responses. Through the mother's and through the child's own regular, consistent merging of ap-

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[6] Arnold Gesell and others, *The First Five Years of Life,* pp 249-51.

propriate action with the mother's use of such words as "toilet," "bath," and "dinner," the child "catches on" to the meaning of these words in his life Thus a *sociological basis* of language learning is found in the family life where a certain word is used again and again in the same activity with the same meaning On the other hand, in bi-lingual families the child may become confused, and his language learning often is seriously retarded by the mixture both of different words and of diverse sentence structures in the two languages. An example is a family where the mother speaks German, the baby's brothers and sisters mostly English, while the father attempts to use both languages Under the more usual and more fortunate conditions of a single spoken language, an understanding of words heard usually precedes by several months their use in speech by the young child.

Contrast between Trick Words and Language Use

The first words repeated by a child in apparently the appropriate context commonly are doubled syllables, notably *mama, dada,* and *papa,* which are often established through encouraging and stimulating parental repetition of them. Such early vocalizations at about the age of twelve months, when the average number of words repeated is only two or three, have been called "trick words," because they are taught by processes so close to those used in training a parrot. Even though most babies include *dada, mama,* and *papa,* in their repertory of spontaneously repeated syllables, it still remains a "trick" in the sense that the parents may vie with each other in securing the appropriate response to "Who's this?" Such *saying of sounds* should be distinguished from the actual language learning that soon follows it, just as it may be distinguished from the random babbling that precedes it.

In contrast to this *saying of trick sounds* on demand, the
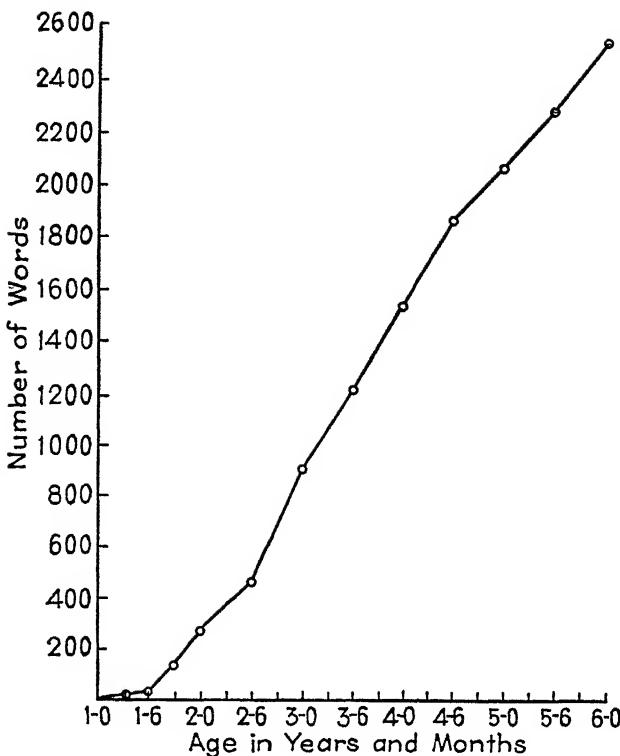
FIGURE III —Vocabulary Development Averages of from Nine to Fifty-two Children at Each Age Based upon data from Madorah E Smith, *An Investigation of the Development of the Sentence and Extent of the Vocabulary in Young Children,* Univ of Iowa Studies in Child Welfare, vol 3, no 5, 1926

actual *using* of words for *communication* begins a month or more later.[7] Up to now the response to words heard and the saying of a few appropriate words is on a low intellectual level in which the child is not aware of his own language learning. As he nears the age of eighteen months, however, a change in the child's attitude toward words commonly oc-

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[7] Florence L. Goodenough, *Developmental Psychology,* D. Appleton and Company, New York, 1934, pp 160-162, 248-251

curs He begins to pick out a word here and there from the
family speech using it to gain his purposes. Some careful
observers believe that the child suddenly, within a period of
a few weeks, becomes a seeker for words. Apparently he is
now aware of words as *useful tools* in his social activities.
Whatever may be the nature of this important change into
the selection and application of words, scientific studies
show that a very rapid increase in vocabulary begins in the
latter part of the second year Madorah E. Smith found in
studies of Iowa children that the vocabulary remained at a
low level of about twenty words until eighteen months of
age, but in the next three months it shot up to about one
hundred words (See Figure III) This rapid acquisition and
use of the native language after the age of eighteen months
is so significant that the date is frequently taken as the end
of infancy and the beginning of childhood. An infant then
may be defined, psychologically, as a normal child who has
not yet learned to talk It may be suggested that as birth
follows nine months of prenatal development, so about eight-
een months later the infant reaches another significant phase
in its development, namely, the age when social language
normally begins. Perhaps the latter event is as significant as
the former in the history of the individual's development

Factors Contributing to Rapid Vocabulary Increase

A study of Smith's data shows that from the age of eighteen
months to six years these children increased their vocab-
ulary very rapidly, reaching a peak of seventy-five words per
month between the ages of two years six months and three
years, maintaining an average gain of over fifty words per
month as a three-year-old, and of forty-four new words per
month as a four-year-old. Of course, even a steady increase
in actual number of words involves a proportional decrease
in the percentage of vocabulary gain from year to year. In

the year following the third birthday children commonly increase their vocabulary by two-thirds, in the year following the fourth birthday by one-third, in the year following the fifth birthday by one-fourth, while in the year following the tenth birthday the normal increase is only one-sixth of the total vocabulary Considering the limited abilities of the two-year-old, his vocabulary achievements appear as relatively tremendous intellectual accomplishments.

Why does the child acquire vocabulary so rapidly during these early years? In the months just preceding his burst into speech he has been getting started in walking. His locomotor abilities and his developing perceptions present a much wider variety of experiences to be talked about. Locomotion also puts him on a new plane of social contact, because he can now seek out his mother or his older brother or sister. In these early walking-handling-talking days the "only" child generally gets a multitude of speech contacts from mother and father, while the "non-only" child (who has one or more siblings) might have the company of a very talkative brother or sister of preschool age. Exceptions do occur A mother brought a three-year-old child, whose speech retardation was evident, to a child development clinic On inquiry it was found that the mother and child had lived alone without the companionship of the father or other children Finally, the psychologist asked the mother about her attempts to talk with the child during his second and third years and got the astonishing reply, "What would I talk to him about?" Fortunately for infants, most mothers begin talking to them long before they are a year old and continue through the important language-forming years Another exceptional situation is that of twins. Day found that twins were considerably retarded in language development as compared with singletons.[8] Apparently twins are not stimulated to advanced

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[8] Ella J Day, "The Development of Language in Twins I A Comparison of Twins and Single Children," *Child Development*, 1932, vol 3, pp 179 199

responses by each other as are children by persons who are above their own level While singletons are motivated to gain language as a tool in entering the wider fields of activity of their older companions, the language retardation of twins may well be due to the satisfactions they derive from each other's companionship and to the fact that neither one is enough in advance of the other to be a source of learning All this evidence leads toward the conclusion that a variety of activities, which are made possible by motor development, and which also involve social contact, constitute the conditions that promote exceptionally rapid vocabulary gains from the second to the sixth year. Furthermore, early in this period the child begins to ask, "What's that?" So an awareness of names and curiosity about objects supplements the need for an enlarged vocabulary that arises out of social activity.

A significant study by Jersild and Ritzman shows that the average number of *different* words spoken, in the three-hour periods of which records were made, more than doubled between the second and third years, while the *total* number of words spoken more than trebled Thus verbosity, or loquacity, increases at an even higher rate than vocabulary range.[9]

In regard to sex differences, girls appear to have a slight advantage over boys in the size of vocabulary, more precise pronunciation, and longer sentences in the early years of language use, but boys partially overcome this handicap as they come into the elementary-school age The advancement of girls over boys in speech is probably contributed to by the former's more rapid biological maturation, while the progress of the latter toward overtaking the girls may be due to the greater freedom given boys in our culture to

[9] Arthur T Jersild and Ruth Ritzman, "Aspects of Language Development The Growth of Loquacity and Vocabulary," *Child Development,* 1938, vol 9, pp 243-259

venture into new experiences Thus the joint action of biological and sociological factors may make the interpretation of language development at any age difficult

Another study of the joint action of two factors—sex and onliness—shows that "only" children at five-and-a-half years were superior to the "non-only" children in both vocabulary range and loquacity or "talkativeness" [10] The only girls, however, showed much greater superiority to non-only girls than occurred in the comparison of the two groups of boys. The question whether this fact indicates a difference in *social* treatment of the two sexes in these Minnesota homes having only children, or some effect of the more rapid biological maturation of girls, or a combination of these and of other factors that are hidden, suggests the complexity of child development and the light that language studies at any age may throw upon the development of any child.

Development of Sentence Length and Structure

Having suggested a few of the many factors that affect the development of vocabulary and "talkativeness," we need to examine briefly the changing structure of these meaningful vocalizations from their beginning with single words. In the early months of comprehensible speech, which usually follow the child's first birthday, he uses only a single word at a time, but each of these single words apparently represents a whole situation. Such "single-word sentences" are often accompanied by natural gestures, which aid the comprehension of the adult observer. The single "sentence-word" *mama* may mean "mama come to me," "mama give me," "mama look at me," and so on, according to the inflection with which it is uttered and the gestures that accompany it. So the single word, as used early in the second year,

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[10] Edith Davis, "The Mental and Linguistic Superiority of Only Girls," *Child Development*, 1937, vol 8, pp 139-143

cannot properly be called a noun, although the words employed are usually names of things or persons, because each contains vaguely and crudely *in meaning* a whole sentence, much as a startled adult may use the exclamation, "Fire!"

In the latter half of the second year, children begin to "put words together," usually noun-verb combinations From this time onward until the age of five the average *length of response* becomes another adequate measure of language development. A two-year-old's average response is two words long, a three-year-old's is about three words, while a four-year-old's average is near four words. The student should note that an *average* length of four words signifies that some of the responses are shorter, while others are longer, but that in general the length tends to cluster around four words. In the longer sentences there gradually appear increasing proportions of verbs and adjectives, and eventually the more difficult use of personal pronouns, relative pronouns, and subordinating and connecting words So the crude "single-word sentence" becomes lengthened, differentiated, more complex, and more precise as the child approaches elementary-school age. Without knowing a single "part of speech," the average American child of five years has acquired some two thousand words which he can weave into relatively complex sentence structures. And all this language development may have been acquired dynamically within the family and with playmates in daily living and spontaneous activity without any specific instruction from a teacher or parent beyond replies to the question, "What's that?" This functional process of language learning is consonant with the child's capabilities and his increased insights and desires; but it is quite different from the study of vocabularies and grammar that commonly occurs in many language classes of elementary and high schools. Thus the five-year-old acquires a language tool which aids him daily

ın learning more about his environment and gives him a means of communication with his fellows, constituting a substantial basis for community living The amazing achievement of language learning between the ages of two and five suggests vividly the great importance of these years in their effect upon the child's whole life including both his intellectual and his social development.

Age-Level Standards of Communication

What language accomplishments can be expected of a normal American child in his preschool years? One authentic answer is found in the standardized intelligence tests. For example, the Revised Stanford-Binet Scale [11] requires the child of two years to understand oral verbal directions, accompanied by demonstrations, for placing blocks in a form board and for building a tower of four or more one-inch blocks The child also is expected to obey intelligently simple commands, such as "Put the spoon in the cup " At the end of his first six months of using words, following a normal beginning at eighteen months, he is asked to identify by putting his finger correctly on four out of six objects commonly found in an ordinary child's environment, such as a button or a cup Likewise, on a large paper doll he is required to point out, among other things, the hair and mouth. Reversing the process, the child just turned two is expected himself to give the name of at least two objects in a picture series that includes shoe, clock, tree, scissors and other items. Furthermore, at some time during the testing process the normal child of twenty-four months is expected to combine spontaneously two or more words in a brief comprehensible sentence, such as "See kitty" or "Bye-bye car." Evidently the test of normal human intelligence even

[11] Lewis M Terman and Maud A Merrill, *Measuring Intelligence*, Houghton Mifflin Company, Boston, 1937

as early as the second birthday is appropriately dependent, among other things, upon ability to understand and use the human tool of language. Verbal communication already has been established as the sociological basis for intellectual development of the growing two-year-old.

During the succeeding twelve months as the child advances from his second to his third birthday, his ability to use language expands not only in the directions already mentioned but includes new accomplishments. At two years and six months he must identify an object from a picture card by its use, when the examiner says "Show me what we drink out of," or "Show me what goes on our feet." At this age the child can repeat correctly two digits, while at the third birthday he will repeat successfully a series of three digits Certainly, the extension and diverse uses of language constitute a significant part of a reliable test of intelligence even for a young child, if he lives under desirable conditions of social growth in a happy, communicative family.

Communication is accorded an important place also in *The Vineland Social Maturity Scale.*[12] While this scale includes a number of developmental steps already mentioned, such as babbling, the following of simple instructions in the first year, using the names of familiar objects, and talking in short sentences before the end of the second year, it designates in addition the giving of simple accounts of experiences with sequential and coherent content and relevant detail as a standard accomplishment shortly before the third birthday. Five-year-olds commonly enter the realm of written language by printing simple words like the first name and a few words of three or four letters, while the six-year-old uses a pencil for writing legibly a dozen or more simple words correctly spelled. According to Doll, by the age of

[12] Edgar A Doll, *The Vineland Social Maturity Scale,* The Training School, Vineland, New Jersey, 1936

eight the child of average social maturity, on his own initiative for his own entertainment or information, reads material at about the fourth-grade level, found in comic strips, movie titles, simple stories, notes, and simple instructions The ten-year-old writes brief letters to friends or relatives with no more stimulation than mild suggestion and no more help than the spelling of unusual words. At this age he also uses the telephone freely for his own practical purposes. To these may be added, at the late ten-year-old level, the answering of advertisements and the making of purchases by mail. During the next three years his enjoyment of books, newspapers, and magazines gradually expands, along with letter writing that is more than perfunctory, until as a fifteen-year-old he is following current events in the newspapers with some continuity This series of items reveals the significance of language in its varied forms as a basis for the kind of maturity desired in the adult citizen who takes personal responsibility and shares in the interests of an ever widening community. Communication is basic for community living.

Significance of Language in Cultural Transmission

One of the main considerations for human development that the learning of oral speech and later of written language exemplifies is the transfer from the group to the individual of a phase of the "culture." The sociologist means by a "culture" a complex organization of customs followed by a people and transmitted by them from one generation to the next. The native language is a set of symbols that represents the many aspects of a culture and helps to transmit them The human race has maintained its place upon the earth by transmitting *biologically* a heritage of brains and brawn, sense receptors and digestive organs, and at the same time by transmitting *sociologically* a heritage of cus-

toms, tools, and latterly for many millennia a heritage of verbal symbols organized as a living language Emphasis may be added upon the tremendous significance of written language that reaches around the earth and back through the ages, bringing the student of today into contact with the best thinkers of the past and present Obviously, human development depends upon the joint effects of physical heredity and social culture

Our inquiry concerning human development must turn back now to the origins of culture and of the language phase of culture in order to round out the scientific view Although human origins are hidden in a distant past, the astronomical and geological accounts of the rotating, cooling, changing earth, the biological record of evolution from simple to complex living forms, and the anthropological studies of man and his precursors together constitute a substantial ground for a few considerations The universe is vast in extent and in time compared with the relatively brief time that man has been the dominating inhabitant of a small planet, which circles around one of the smaller suns. Man's rise above his mammalian relatives has depended upon a fortunate combination of coordinated vision, erect posture freeing hands and mouth, supple hands with thumb-to-finger apposition, complex vocal organs permitting wide diversity and acute precision in vocalization, and a nervous system with a relatively large brain to aid in the coordination of manual, visual, vocal, and other bodily activities As the well equipped precursors of man lived in family groups through the long period for which their offspring required care, they probably learned to pick up sticks and stones for killing animal enemies or obtaining food From such experiences their free, flexible hands, with eye and brain, slowly led them from incidental tool-using into intentional tool-making and more effective tool-using. While this more or less organized group life was being passed from genera-

tion to generation as a tool-using and tool-making culture, the great step to meaningful vocalization probably occurred supported by meaningful gestures made with the free arm and pointing index finger. So by happy accident the process of naming persons, places, tools, and actions was added to the group culture and thereby to human development through sociological transmission. Whether this good fortune happened in one place and spread throughout the earth or emerged from similar circumstances independently in a number of localities may never be known. The social sciences, nevertheless, have presented sufficient evidence to assure the student that the language aspect of human development also has come out of natural events and need not be regarded superstitiously nor be placed in a supernatural setting

The step from unorganized, meaningless vocalizations to meaningful words organized as a language has tremendous significance whether we think of that long past event in the history of the race when men first spoke or the ever-new event of the first word spoken by the young child of today. Through this language-using step the human race, after perhaps tens of thousands of years of group living, emerged from the dumb-animal level, while the child after less than two years in a family circle begins to escape from the relative dumbness of infancy into the communicative brightness of early childhood. Even though the vocabulary must be small at the beginning in both the racial and the individual adventure, a start is made thereby toward remarkable possibilities. The savage group may become civilized, the ignorant child may become, in rare cases, an intellectual genius. Without language, the living organism, even with the best biological equipment, remains sub-human, the human progeny that for reasons other than sensory and motor defect can never learn to talk becomes only an idiot. Language, including mathematical notation and other written

symbols, makes possible the growth of social cultures, and these cultures in turn may foster the fullest development of individuals.[13]

Language, Well Rounded Development, and Democracy

The significance of language for the growing child has two related aspects· first, he learns to talk with others, second, he learns to talk with himself The former makes him a more social being through communication with others, the latter makes him more of an individual through thinking his own thoughts, and that in turn enables him to influence others As the child begins to talk to himself, at first aloud, later in whispers, and eventually with only imperceptible movements of the vocal organs, he uses words not only as an accompaniment to action but soon as a preliminary to action That is, his proposed actions now become internal by means of symbols Thus in time he may come to try out his proposals for action in words and may choose to discard some proposals while others are adopted. Even at the age of two or three years, these verbal adventures may suggest to the observer the purposeful planning that characterizes the intelligent individual as he matures Through becoming a more social receiver and giver of suggestions, the growing child may become an individual of more initiative and independence. In the family during his second and third years, he may at the same time gain individuality and social membership through varied activities which are guided and supported in a limited way by language.

The development of the child depends so heavily upon the "culture" in which he grows that the danger of restriction is almost as great as the assurance of expansion Even language can be used to narrow a person's life just as narrow habits

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[13] For the distinction between animal cries and human language, see Norman L Munn, *Psychological Development,* pp 372-378

and customs may The term, "don't," suggests the limitations within which families sometimes fence a young child. He must not touch, move, or speak Again, words are used more positively to require prescribed actions at the table, during the nap hour, or even in the time allotted to play. "Dictation" means repeating word for word, but it also means using words to restrict and narrowly to channel the actions of another. If the family is dictatorial, its culture may grip the young child like a strait-jacket, limiting his thinking as well as his action or nagging him into emotional maladjustment Language may thus become a most dangerous human tool

On the other hand, when the family is conducted democratically, that is, in such a manner as to make possible the greatest self-realization within a social pattern of mutual welfare and respect, its members will use language to share in the young child's growing interests and to encourage his attempts at planned activity. Under such conditions motor, intellectual, emotional, and social development may be enhanced greatly in the months and years immediately following the child's first grasp of words in the mother tongue Anyone who watches a child develop, especially from the age of eighteen months to his third birthday, will realize the close relation between his extended motor skills and new interests in doing things, and the way in which these physical abilities and intellectual curiosities are dependent upon social contacts made through language The child is growing as a whole, complex being and his language development is facilitated by the wholeness of his growth; while the language tool reciprocates by helping expand and accelerate every other aspect of his psychological and social development. Consequently, any separate treatment of motor, intellectual, emotional, or social development should be employed merely as a device to clarify the developmental processes but not to separate any intimately related factor—

such as language—from any other factor which it affects or which in turn is affected by it Through understanding how the whole child grows in the democratic family, the school may learn also to promote well-rounded development by using but not overemphasizing or abusing the language tool.

The student who sees clearly the steps by which the incomprehensible babblings of man's ancient precursors and of today's infant have become the tools of human thinking and human communication need no longer view the "mind" of man as a mystery or regard his "soul" with superstitious awe. The wonders of language, of communication, of intellect rest upon substantial bases derived especially from the sciences of biology, anthropology, sociology, and psychology. Speech becomes a prime factor in human development especially when it is employed in ways that are democratic, although its use in a dictatorship may be a chief instrument for the degrading of humanity Because language is so important in human development, "free speech" and "free press" honestly employed become essentials in a democracy that centers upon the fullest possible development of all individuals.

Further References

Chapter XVI of this book, entitled "Reflective Thinking," amplifies the relations of language to thought and includes additional references on language development

Fisher, Mary S, "Language Patterns of Pre-school Children," *Journal of Experimental Education,* vol 1, 1932, pp 70-74
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    1936, Chapter 8
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and the proportion of the different parts of speech among chil-
dren ranging in age from thirty to sixty-five months Includes a
comparison of the effects of diverse settings in which children
develop

IV

BASIC ORGANIZATION OF EMOTIONS AND NEEDS

In Early Childhood

THE EMOTIONAL aspect of human development appears to be more complex than the normal physical growth of a child, his gradual improvement of motor coordination, or the acquisition of his native language. When we review the first three years of any healthy child's life, we see that his steady growth in height and weight obviously is related closely to his keen appetite for food, that his ability to walk, run, and throw a ball depends certainly upon both his neuro-muscular growth and maturation and upon his expanding interest in various activities, while his increasing ability to use words appropriately in short sentences is derived not only from increasing mental capacity but also surely from his social conversations in the family and elsewhere. These changes are open to the sight and hearing of every observer; but the origin and development of the three-year-old's feeling of pleasure and displeasure, the causes that underlie his periods of excitement, the origins of his angers, fears, joys, sympathies, and affections are more or less hidden

within the child Feelings and emotions are aspects of human experience that seem inner and personal It is true that the three-year-old reveals these emotional conditions by his behavior more readily than he will a few years later, but the varied facial expressions, the frequent laughter and the occasional crying, and other observable movements of the body, while they indicate the occurrence of emotions, scarcely explain their origin and organization. Is emotional development more like motor development, which depends so directly upon the patterns of physical growth and the child's own self-guided activities, or is emotional development more like language development in being dependent not only upon the child's biological equipment but also significantly upon the culture of the group into which the child is born? What are the relations in childhood between needs, or motives, on the one hand, and feelings, tensions, and emotions, on the other?

Three different suggestions commonly have been offered to explain a child's feelings, tensions, and emotions. The first view assumes that every person is born with a definite set of distinct emotions—anger, fear, jealousy, joy, affection, and perhaps a few others. The second suggestion resembles the first in assuming a specific origin in biological inheritance, but it differs in depicting the diverse emotions as emerging from year to year in accordance with a definite schedule of maturation. The third view contrasts with the other two views in emphasizing the complex interaction between the physical-social environment and the individual's own body. Through this interaction, new emotional experiences may arise out of the meeting of new conditions with new abilities and new desires. The character of all three suggestions leads the student to begin his search for the scientific facts concerning emotional development and the origin of motives, or needs, as early in the child's life as possible.

Beginnings of Emotional Behavior in Infancy

Although very significant physical growth and some motor development occur before birth, science presents no evidence concerning the "feelings" of the individual during fetal life. Even the birth cry is taken scientifically as a neutral, physiological reaction useful in starting the motor activity of breathing rather than as a sign of wrath against the world into which the infant is so "rudely" thrust—the latter an interpretation offered in the eighteenth century by the philosopher, Immanuel Kant. During the early weeks of his physically independent life, the healthy infant spends most of his time in sleep, leaving relatively brief intervals of wakefulness in which emotional experience might occur. Studies of the infant awake show a contrast between his short periods of excitement and his longer periods of relaxation. When he is startled by sudden changes, such as a loud sound, a flash of light, or an upsetting jerk of his blanket, he makes movements of his whole body and sometimes cries, thus indicating "generalized excitement" A prick of a pin, hunger, or stomach-ache produce similar conditions of excitement.[1] The opposite condition of relaxation is correspondingly indicated by remaining comparatively quiet. This contrast between excitement and relaxation constitutes the beginning of emotional experience and evidently is closely related to biological needs. Excited feelings accompany an unbalanced condition of biological functions, while balance or equilibrium of functions carries with it feelings of relaxation. Thus from the very beginning a relation is seen between emotional conditions and the needs of the organism, which forecasts the intimate connection in later life between personal desires and definite emotions.

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[1] Mandel Sherman and Irene Case Sherman, *The Process of Human Behavior*, W. W. Norton & Co, New York, 1929, Chapter 6

Developmental Differentiation of Diverse Emotions

The next step in the development of the baby's feelings seems to be his differentiation between pleasant and unpleasant conditions of excitement At first excitement is apparent only under unpleasant conditions of pain or sudden shock, while pleasure can be identified only with relaxation. Long before the end of the first year, however, several kinds of excitement, both pleasant and unpleasant, can be distinguished The infant begins to show excited joy over the coming of his nursing bottle or the return of his father to play with him. It is evident that these excited conditions are dependent upon the baby's growing ability to distinguish visually his bottle from other objects and his father from strangers In other words, he is beginning to select specific objectives, these being accompanied by appropriate emotional conditions For example, at five or six months the infant may withdraw in fear from a stranger or at least fail to respond, although a few weeks earlier he treated the family and strangers with a similar responsiveness to all speaking, moving human beings. At about the same age the infant shows by his action that he is capable of making visual distinctions between smiles and frowns, especially when their effects are reinforced by his new auditory ability to distinguish between threatening and friendly voices. We note also that the infant's growing ability to grasp, strike, creep, and walk makes possible numerous contrasts in behavior, such as that between hurried withdrawal in fear and advancing attack in anger at displeasing objects, or between these antagonisms and affectionate movements toward his friends. With the coming of intelligent discrimination, specific desires arise and concomitantly particular emotional conditions appear as these desires are frustrated or attained.

Actually emotions appear as the feeling aspects of more or less active forms of behavior. These activities become organ-

ized through the growing abilities to perceive more distinctly
and to move more effectively, while at the same time the
child's activities are reinforced by his increasing recognition
of the relation between certain factors in the environment
and certain pleasant or unpleasant conditions in his own
experience Consequently, each emotional feeling is to be
interpreted in terms of the organic unity of the individual's
body and the environmental conditions that affect him *at the
moment* rather than in terms of a set of inherited emotions
present at birth or of a sequential series of different emo-
tions laid down by maturation alone. Of course, the emo-
tional condition at any moment is affected by feelings that
have been experienced previously in similar situations As
the child develops sensory perceptions and motor skills, he
performs an increasing number of diverse acts, many of
which are accompanied by excitement. The observer may
well classify or describe these actions as angry, fearful, affec-
tionate, or joyful, if he avoids the error of assuming that *each*
is *caused* by a distinct, separate, inherited emotion The
causes of each action lie in the psycho-biological equipment
of the child as nurtured by experience and in the environ-
mental factors that affect him at the time the action occurs.
Thus the diverse emotions gradually become differentiated
out of the generalized excitability characteristic of early in-
fancy, and they become organized in patterns in accordance
with the child's perceptual, motor, and intellectual develop-
ment.   .

The gradual differentiation of the emotions has been pre-
sented in chart form by Bridges after observation of a large
number of infants and young children.[2] This chart, which is
reproduced as Figure IV, suggests the process of differentia-

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[2] Katharine M B. Bridges, "Emotional Development in Early Infancy,"
Child Development, vol 3, 1932, pp 324-341, also by the same author, *The
Social and Emotional Development of the Preschool Child,* Paul, Trench,
Trubner & Co , London, 1931.
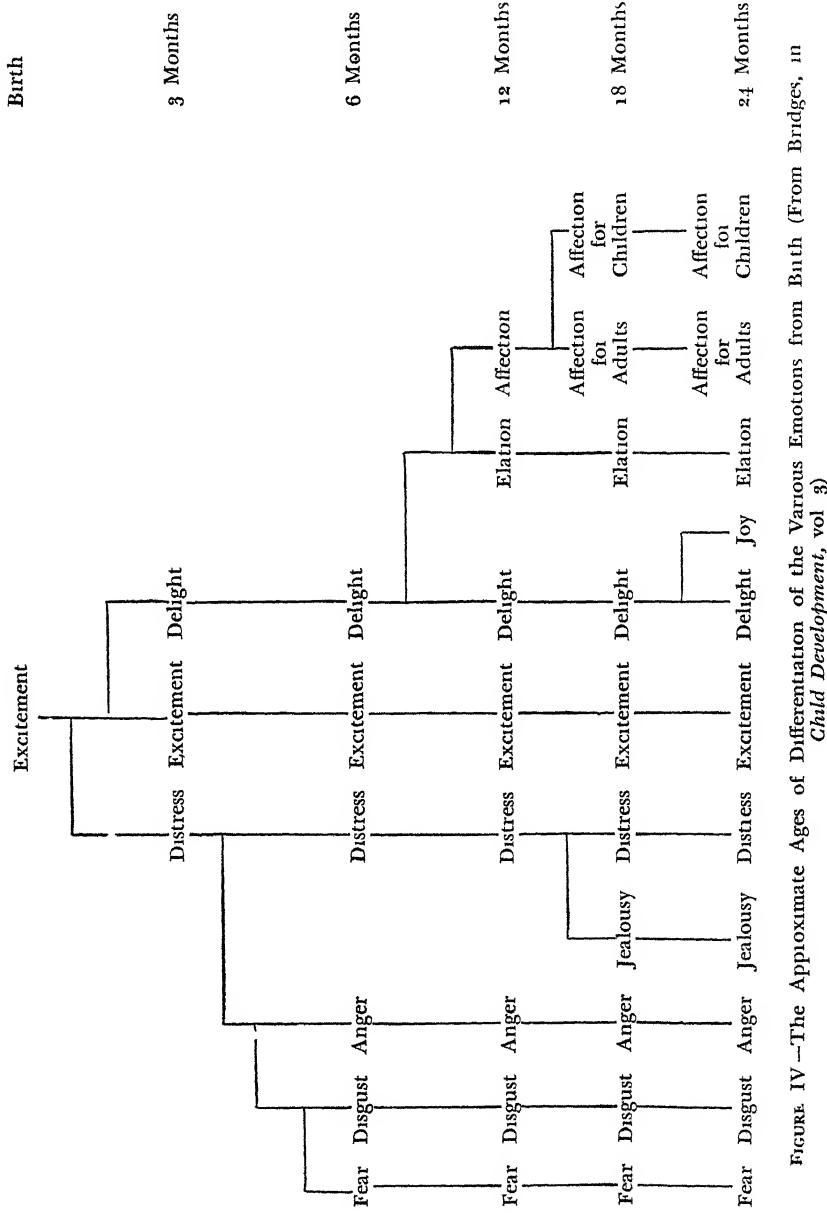
FIGURE IV.—The Approximate Ages of Differentiation of the Various Emotions from Birth (From Bridges, in *Child Development*, vol 3)

tion clearly, although it is not to be accepted as an exact schedule for all children *Distress* was differentiated from general excitement first, a little later *delight* appeared, while out of *distress,* others were differentiated in this order: *anger, disgust,* and *fear* Furthermore, the particular names given by Bridges to the emerging emotions are not always the same as those offered by other competent observers of young children; for example, anxiety, astonishment, obstinacy, dissatisfaction, and expectation are included in other studies Nevertheless, regardless of the particular terms used to designate the emotions, the Bridges chart indicates the process of differentiation in the development of the emotional aspects of behavior.

Bodily Changes Involved in Emotional Organization

Although the observation of the diverse environmental factors affecting the young child, as his sensitivity increases and as his outward motor reactions become more definitely patterned, reveals much concerning the development of emotional experience, further light is thrown upon the problem by scientific studies of the changes occurring within the body during periods of emotional excitement. Everyone understands that many muscular movements, such as those of the heart and stomach, and many visceral secretions, such as those of the liver and intestines, go on involuntarily according to bodily needs Also we know that in periods of emotional excitement changes occur in the rates of heart beat and respiration, in blood pressure and distribution, and in the functioning of the digestive organs These adjustments are made more or less appropriately through the intermediary action of a special division of the nervous system, the autonomic or self-governing nervous system, involving among other actions that of the endocrine glands, which include the pituitary, thyroid, adrenals, and several others.

In cases of excitement, such as fear, the autonomic nervous system transmits impulses producing movements of the involuntary muscles—for example, those in the walls of the intestines—and also promoting, in certain endocrine glands, secretions that enter the blood stream and are distributed quickly to all parts of the body. Thus the rise of emotion is characterized by extensive physiological changes throughout the whole body Many of these changes are appropriate to the demands of the organism. In anger and fear, for instance, the endocrine glands and involuntary muscles act in concerted ways to strengthen the whole body as if to undergo an ordeal involving loss of blood or excessive exertion. The numerous investigations of the physiological changes occurring during strong emotion indicate that every emotional experience involves a reorganization of bodily functions Furthermore, there is no possibility of excluding the emotions from experience at any age level, because we must, for example, always employ our bodies in meeting the crises of happiness and despair that occur in any active life.[3]

Gradual Organization of Emotional Experience

The pattern of behavior that emerges in any person at any age level evidently depends upon his fundamental biological needs, such as those for food and activity, his developing social needs, such as those for security and acceptance, and the relations established through experience between the individual and his changing environment, including many acquired interests and desires. Due to the complexity of the physiological changes and our limited knowledge of them, the diversity and continuous modification of the social environment, and the uniqueness of each individual's combi-

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[3] Walter B Cannon, *Bodily Changes in Pain, Hunger, Fear and Rage,* second edition, D Appleton and Company, New York, 1929, for a summary, see Norman L Munn, *Psychological Development,* Houghton Mifflin Company, Boston, 1938, Chapter 14

nation of abilities, needs, and interests, the guidance of emotional organization continues to be experimental. No rule of thumb can be given for preventing temper tantrums or irrational fears or for producing sympathetic regard of associates or high appreciation of classical music. Careful observation of the circumstances surrounding the child's emotional expression, however, may indicate the environmental conditions that will help him through his next steps in emotional development

When we observe the normal child in his second year, we find him learning to walk alone and then to use some of his family's words at appropriate times As he thus escapes from the narrow motor and intellectual limitations of infancy, he also attains new levels in the organization of emotional experience. His angers and fears become more definite, his pleasures in muscular accomplishment and in sensory experiences of handling, tasting, and seeing increase, and he finds many new, interesting objectives that he can attain by walking, climbing, and reaching During the same period his infantile feeling for the physical security of kindly arms and a fenced-in crib is superseded, under desirable conditions, by a more intelligent, social dependence upon others, usually his mother and father. Thus the related processes of differentiation and organization proceed steadily.

As the child matures toward the level of two years, he may be guided in the development of emotional courage and independence by providing him with opportunities to engage in activities to the extent of his capabilities. An experimental demonstration of this is found in the developmental opportunities given to one of a set of non-identical twin-boys The experimental twin—Johnny—was daily stimulated to engage in a variety of activities so that when less than a year old he was swimming with his face under water, at sixteen months he was moving about skillfully on roller skates and ascending steep inclines (in the laboratory); and

at nineteen months he was learning to ride the tricycle During this period, the control twin—Jimmy—remained in his crib or playroom with a few toys without further interference or encouragement Johnny, as might be expected, developed greater motor skill and coordination, and did not manifest timidity, as did Jimmy These differences persisted at age three when they were re-examined a year after leaving the laboratory. At the age of six when the boys were again studied, as they were about to enter school, it was found that the experimental twin still showed greater motor coordination, whereas the control twin continued to be more awkward and timid Observation and further psychological examination revealed that Johnny's emotional behavior was under better control than his brother's, and closer to adult status Johnny appeared more self-confident, more self-observant, whereas Jimmy was characterized as more "childish," more like the general run of children of his age [4]

It thus appears that the opportunities given one of the boys not only promoted his motor development and coordination, but also contributed to emotional maturity greater than that of his twin brother This advantageous outcome is the result of Johnny's greater and more varied experiences of successful achievement, accompanied by the security provided by the protecting hands and reassuring presence of the experimenter During these experiences not only was his motor development promoted, but also his insights into his environment through his extended range of activities must have been increased, thus adding to the reasons for his greater emotional maturity.

The healthy, normal two-year-old actually is courageous and cheerful; he is amused by such sitting-down falls as occasionally interrupt his awkward locomotion, and he is

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[4] Myrtle B McGraw, "Later Development of Children Specially Trained During Infancy Johnny and Jimmy at School Age," *Child Development*, 1939, vol. 10, pp 1-19

pleased with his ability to get up and go on again He can now talk to himself and does so freely—apparently emphasizing with words the exciting events that now occur frequently If the mother chooses to cultivate his independence and broaden his social attitudes by enrolling him in a nursery school, she may find it necessary to leave him weeping on the first day, but soon the teacher and the other children will become sufficient substitutes, during part of the day, in the deep emotional realm of social security. So the two-year-old becomes adjusted to a new environment making one more step toward maturity in the long series of steps that must occur in any life that develops far. During this year he may not pay enough attention to his own two-year-old companions for the objective observer to credit him with developing the emotion of affection toward them, although he may grin and laugh with them over the unexpected fall of a toy or some other surprising event.

It is evident to the observer that the child's emotional organization, as he nears his third birthday, is very different from the record presented in infancy, and that his advancement depends in large measure on the kinds of experience provided by his adult guides. Under unintelligent treatment, or undesirable emotional behavior of parents, he will remain "babyish" in his emotional patterns even though in his physical growth, motor skill, and use of language he attains approximately normal development The responsibilities of parents and teachers do not decrease in the third year, although the child is no longer a helpless infant.[5]

Emotional Tension and the Child's Needs

Before going further in the consideration ,of the steady development of organized emotional experience under wise

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[5] Lucy Sprague Mitchell and co-authors, *Another Here and Now Story Book*, E. P Dutton and Company, New York, 1937, pp 1-11

guidance, it may be well to discuss difficulties, such as thumb sucking and negativism, that often appear in these early years, giving evidence of new emotional problems In previous discussion the beginnings of emotional excitement in infancy were referred to irritating stimuli—the shock of a loud noise, the prick of a pin, or a stomach-ache It has also been shown that as the youngster escapes from the limitations of infancy he gradually acquires new sources of emotional excitement related to his growing ability to distinguish objectives at a distance and to move toward them He is changing in the second year from a relatively passive infant, whose relaxation is occasionally disturbed, to a more and more active youngster, who becomes excited about reaching objectives near by The joy of organized, effective muscular activity is a growing phase of his emotional life It is evident that as new desires and interests emerge in the child's experience his objectives cannot always be reached, so the child's activities occasionally are thwarted, partly by his own limitations in ability, but especially when his desires and interests come into conflict with the wishes of adults For example, a two-year-old wishes to investigate a fragile, brightly colored dish that he sees on the table, but his attempt to reach it is thwarted by his mother's grabbing either him or the dish just in time. The result may be loud crying in the midst of the rise of emotional excitement that we name anger and disappointment

Indeed, most of our unpleasant emotions from this age throughout life can be interpreted in terms of the thwarting of our fundamental needs and of our desires, and our pleasant emotions can be explained in terms of felt needs whose satisfaction has been attained. Thus the study of emotional organization soon turns from the relatively simple, physiological needs of the infant to the more complex social needs and to the subsequent desires developed through the growing abilities to perceive objectives, to move actively, to build

constructively, and to enter into social relations with other individuals It is evident, then, that we will find the emotional difficulties of even the two- or three-year-old inseparably linked with his basic needs, together with his modes and experiences in satisfying them

Thumb sucking, for example, is a common habit of young children that carries the scientific observer back to a need beginning at birth Hunger as a biological need produces restlessness or tension and is relieved through feeding, involving a sucking process during which the infant becomes relaxed. The sucking of thumbs and fingers frequently is employed as a substitute behavior, after the nipple is removed, because it continues to promote physical comfort and relaxation The need for physical security, lying in a comfortable crib or being held in comforting arms, is also being organized gradually during the experiences of early infancy. If these comforting conditions are withheld, thumb sucking may become a substitute for them also When further tension is caused by the unwise mother who too quickly pulls the thumb from the mouth, who scolds the one-year-old when he but vaguely understands that he is being told not to suck his thumb, who attaches metal appliances or applies vile substances to the thumb, then the satisfaction from comforting thumb sucking actually is *increased*. When the child reaches the more social two-year-old level, at which the need for physical security merges gradually into the need for social security, thumb sucking may be traced in some cases to an unsatisfied need for affection. In a similar way many other forms of apparently useless habitual behavior throughout the whole age range from infancy to senility often are signs of thwarted needs, or motives. Healthy emotional development and continual thwarting of needs are incompatible.

Adjustments in Behavior through Social Control

On the other hand, every child must at some time in the process of development so direct the satisfaction of his fundamental needs that he can live happily and acceptably in a certain social group Whether, for example, we begin in infancy with the common practice of making the child wait longer and longer intervals, even if he cries, between the feeding-sucking periods, which constitute his deepest satisfaction at this age, or whether we adopt the Navajo Indian practice of feeding the child up to the age of five whenever he cries and then clamping down on such indulgence, in both cases the child must eventually meet a program of social control This social control is an early hint of the many adjustments in behavior and in emotional attitudes which all who become mature must make, whether in the matter of feeding, personal habits, interpersonal relationships, or community responsibilities.

In the second year, increased emphasis on toilet training reinforces the child's social-emotional education. His mother insists that he no longer wet and soil himself whenever and wherever he pleases. She also diverts him from picking his nose and handling his genitals, supplying substitute and corrective activities. He is required to control his impulses to investigate and perhaps "destroy" the more fragile and valuable objects that he may now be able to reach. Thus in the first two years the child may begin to learn that he lives in a society where love and sympathy are mingled with controls that involve a gradual change in his emotional attitudes

These lessons are difficult for the young child, and their teaching involves dangers to his development, but their neglect does also. During a period of behavior development, such as is involved in toilet training, the child's feeling of confidence in the mother and of security at home must be preserved. Again the question of "readiness" for any new

behavior adjustment arises, accompanied by dangers in beginning too early or in deferring too long. The child may react to social controls in two opposite ways, both of which are undesirable (1) he may be rebellious against the control, or (2) he may be excessively submissive to the control. Between these dangers that may forecast the political rebel, on the one hand, or the weak "yes-man," on the other, skillful guidance can help develop an individual adjustment that is in closer accord with the needs of democratic citizenship. An adult who guides a child up the "path midway between allowing and forbidding" must watch carefully the reaction of that particular child in each experimental step of the process [6]

It is necessary to state parenthetically that not every case of thumb sucking, or similar activity, may be traced to lack of nourishment, a deep need of physical and social security, or neglect in the provision of appropriate manual activities. Thumb sucking may be a simple habit. Exploratory handling of the genitals by young children may be classed with thumb sucking as a common reaction at this age level, which should not be overemphasized as indicative of emotional tension, nor dealt with in a manner such as to create in the child feelings of guilt or anxiety. In other words, the whole situation needs to be studied to determine in each case the causes and the degree of significance that should be attached to any undesirable form of behavior

The Meaning of Negativism

Excessive negativism offers another example of a possible symptom of danger in emotional development and a sign of thwarting that may arise during unwise attempts to give social guidance to the young child. This form of behavior,

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[6] Florence Clothier, "The Social Development of the Young Child," *Child Development*, 1938, vol 9, pp 285-91

however, is named from the adult point of view, for the negativistic child resists persistently the requests of adults Negative behavior has been found so commonly among two-year-olds that some writers on child care have treated negativism as an inevitable stage of temporary retardation in emotional development and therefore traceable to a definite hereditary pattern If the students of child development consider, however, that the two-year-old is not far advanced in his encounters with meaningful language and that day by day he is discovering new activities of his own, which he enjoys and wants to pursue, it will be realized that thwarting of a new kind underlies his negative behavior. When an adult suddenly asks this two-year-old—who a few weeks earlier may not have been able to understand the request—to turn from his own active play to a relatively unknown alternative, is it any wonder that he shakes his head defiantly, blurts out an angry "No!" or sulks moodily? It is not surprising that persistent interference with his on-going projects drives him into sullen withdrawal from all activity and into screaming, defiant disobedience, and perhaps temper tantrums. The adult who repeatedly frustrates the child's adventures with refusals, with "don't, don't, don't," and with "no, no, no," can expect a similar negativism from the child in response.

Actually the two-year-old is beginning to feel and achieve his own individuality as a person and should be given many opportunities for active attainment and positive expression with favorable emotional experience rather than being reduced to a choice between accepting submissively the dictatorial demands of a superior and making rebellious and violent resistance to suggestions from others Negativism is not caused by inborn stubbornness, nor is it an inevitable phase of two-year-oldness, for negative behavior really is a warning that a new personality is in the making, one which needs wide opportunity for free, self-initiated activity. When

such provision is made, there will appear, instead of the retarding emotions of anger and sulkiness, the joy of accomplishment that promotes courage and persistence in overcoming obstacles. The positive achievement of a two-year-old in pursuing an activity, even for the brief time-span of a few minutes, and in making his own verbal comments on what he does, constitutes an early indication of the organized verbal planning and effective completion of projects that fill the life of a free, intelligent, responsible individual Negativism is an emotional signal that the positive human accomplishment appropriate in a democratic society is being neglected in the child's daily life

Positive Emotional Organization of Three-Year-Olds

Let us turn, then, to see how far the three-year-old personality may advance in emotional organization under family and nursery-school conditions where there is no physical or social neglect, no unnecessary restraint of his activities, no absorption of family anxieties and superstitions, and no sudden demands that interfere with his personal projects We begin with courage, because its opposite—fear—is considered by many psychologists to be an emotional condition most menacing to development, for it inhibits activity, without which little learning can occur. The three-year-old may still be a little afraid of being alone in the dark, but he is bravely overcoming this slight fear assisted by gradual changes devised by his parents He has had enough experience with animals to be cautious in his approach to them in contrast to the entire absence of either fear or caution characteristic of infancy He distinguishes more clearly between persons —his friends, his possible enemies, and strangers. He has been taught caution about the speeding auto in the street and has learned that a fall from the end of the porch will hurt, but that it is fun to jump off the bottom step He has

no unreasonable or terrible fears brought into his life by ignorant or superstitious adults, but within the range of his experience he has advanced far toward the intelligent, human caution that emerges through an adjustment of fear and recklessness

The three-year-old has not yet advanced beyond being angry at *things,* such as his wagon wheel when it gets caught, but then his Dad may with similar feeling still kick the auto tire that he cannot get off the wheel. This youngster observes people more clearly and realizes causes partially, so that his anger is apt to be directed more appropriately toward anyone who interferes with his activities He now understands language well enough to be angered by words that earlier passed lightly over his head. Although the possible sources of anger have increased, he is not likely to have long periods of anger unless the environmental conditions consistently obstruct his activity New forms of emotional behavior, such as jealousy, may occur if the corresponding new forms occur in the social environment—in this case, the triangle of mother, the new baby, and the three-year-old himself The triangular arrangement must be unwholesomely active to produce jealousy the mother apparently extending her affection toward the new baby and seeming to neglect the three-year-old. But the wise mother can sometimes manage so that the three-year-old feels he shares responsibility in the necessary attention to the baby and gets a share of attention from the mother, although such a readjustment involving responsibility may be impossible if the first child is only one or two years of age when the new · baby is born. The unsocial triangle, under fortunate conditions and expert guidance, may become a social circle, and the three-year-old thereby may be started upon another aspect of emotional organization and democratic living; namely, sympathetic sharing with others.

Granted such conditions of wise guidance, our considera-

tion may shift again from the negative aspects of the emotional life to the positive The affection of the child now goes beyond the members of the household to include other friends, young and old, with whom contacts are frequent, as well as his playmates in the nursery school Thus social security is established on a broader basis, and at the same time undue affection for inanimate *things*, such as dolls, old sweaters, and the bed blanket of infancy, drops away or is reduced. As one might expect, the three-year-old's sense of humor is extended as his abilities increase Now that he uses language with more freedom, he even amuses himself by making twists of sound like Judy to Trudy, Eric to Feric [7] His sensitivity to sound and to rhythm is a forerunner of esthetic appreciations that may reach far into the fields of poetry and music. The three-year-old has created out of his experience an extensive and diverse organization of the emotional aspects of his life This emotional development clearly is related to his development in motor skills and in the use of language, but it is equally clear that these abilities cannot advance effectively without courage, the widening sense of social security, and the broader sharing of human interests implied in favorable emotional organization.

Discipline in Democratic Education

In the pages immediately preceding, we have by implication suggested desirable alternatives to the rather common "disciplinary" methods employed by adults in dealing with children Guiding children to live in a social group is too often taken by parents and teachers to mean "Discipline," generally accompanied by corporal punishment, deprivations, loss of status, or temporary ostracism and loss of the adult's affection. Usually such discipline is imposed on the child for

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[7] Lucy Sprague Mitchell and co-authors, *Another Here and Now Story*, p 38

his failure to give quick and unquestioning obedience to adult rules of conduct, or for lack of conformity in respect to forms of behavior Discipline as thus conceived is a means of coercing a child to act in an arbitrarily specified way without consideration of the child's motivation. When used as a substitute for intelligent and sympathetic understanding on the adult's part, this kind of discipline is destined to fail For children view such discipline as springing from parental or teacher ill-will and perversity, especially because the youngsters are often unaware of the adult rules until they break them and are punished

The general ineffectiveness of the traditional methods of discipline through punishment is indicated by a number of compelling facts. Punishment does not discourage the very large majority of delinquents, as shown by the fact that various studies reveal sixty percent, and more, of those who come before the courts to be repeaters (technically known as recidivists) The fact is that "modern ideas" of parental education have rarely reached the families from which delinquent children and youth come, and corporal punishment, "applying the rod," is not a "modern idea." On the contrary, the modern treatment of delinquents is essentially one of giving them opportunities to develop a sense of their own worth—in home, school, and community This treatment implies the removal of forces obstructing such development The ineffectiveness of punishment of delinquents is clarified when it is realized that the vast majority of cases are those of individuals who are or have been very unhappy and discontented or subjected to situations and experiences strongly emotion-provoking in character.[8] Punishment serves neither the purpose of developing a sense of one's worth nor of removing emotional forces in one's behavior.

Children are punished repeatedly and over long periods

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[8] *Cf* William Healy and Augusta F Bronner, *New Light On Delinquency and Its Treatment,* Yale University Press, New Haven, 1936

of time, yet many adults have failed to grasp the fact that their disciplinary measures are not discouraging the child's or adolescent's "offenses", but, instead, are creating tensions between themselves and the "offenders" "Disciplinary classes" in schools are acknowledged to have failed in their purpose, for they increased in the pupils feelings of suspicion and antagonism toward teachers and schooling in general The stern disciplining of negro children of the lower class— a regular part of the family and community pattern—does not eliminate or even reduce the number of violations of the rules of conduct eliciting stern discipline (See Chapter VI, "The Mature Ten-Year-Old ") As seen and felt by the child, and often by the adolescent, physical and other severe forms of punishment are arbitrary and are sources of anxiety or even strong fear The victim has little or no opportunity or ability to protect himself, to discuss, to present his point of view, or to retaliate in kind So he finds indirect ways of retaliation, even if only by inward insubordination. As suggested in Chapter VII, it is held by many students of behavior that the so-called "adolescent revolt" is an attempt to escape from the cumulative effects of parental domination

The alternative is not, of course, completely free, undirected activity satisfying only to the whim or caprice of the individual concerned [9] Instead, parents and teachers must stress self-direction and self-criticism within a framework of group welfare, wherein the only justifiable form of punishment is that which is a *direct* consequence of the act of the child himself, and clearly apprehended as such by him The child needs the guidance of sympathetic adults to apprehend

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[9] There is an essential incongruity, in our society, between the disciplinary practices advocated and widely used on children and adolescents, and the "rugged individualism" and extreme *laissez-faire* advocated by the same people who would sternly "discipline" children and "the younger generation " Perhaps these adults' emotionally vigorous, often violent, advocacy of "rugged individualism" and *laissez-faire* is their own unconscious revolt against the stern discipline to which they were subjected as children and adolescents

the social basis of cooperation at home, in school, on the playground, and in the community Such guidance implies a mutual give and take, which, of course, is contrary to autocratic family and community organization Mutually sympathetic relationships give rise to mutual respect and understanding, resting basically upon feelings of affectional and physical security, of belonging and having a place in the group, without being stifled by overprotection.

A sound program of guiding-discipline will recognize that there are appreciable individual differences, even among children of the same family, in respect to general personality, ability, and experience, differences which can be dealt with adequately only on a basis of children's individualities and their motives, or needs, in behavior. A sound program will also recognize that there are differences within the same individual as he grows and develops, as his motives and specific goals of behavior change A program of guiding-discipline, through recognition of individual needs and differences, and through recognition of the child's claim to integrity and respect of person will encourage him to behave in desirable ways rather than merely prohibiting undesirable activities.

Development of Sympathy in Groups of Urban Children

Recently, certain scientific studies of emotion in young children have turned away from the general preoccupation of investigators with the disrupting emotions of anger, fear, jealousy, and from aggression, withdrawal, temper tantrums, nail biting, and other undesirable forms of behavior, to consider the more constructive, social aspects of feeling and emotion. For example, Murphy has studied the development of sympathy in young children [10]

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[10] Lois Barclay Murphy, *Social Behavior and Child Personality, An Exploratory Study of Some Roots of Sympathy*, Columbia University Press, New York, 1937.

As a matter of fact, almost every child of two or three years acts in a mixture of ways sometimes he is sympathetic and sometimes he is aggressive Emotional trends in childhood are very important, however, because by the age of three or four many children seem to be more or less "set" as aggressive, withdrawn, resistant, or sympathetic personalities, though not beyond modification. Whatever understanding of the rise of favorable emotions may be gained through the studies of early childhood will aid in the guidance of young children, in the prevention of emotional maladjustment later, and in the alleviation of difficulties in older children who failed to receive adequate guidance in the early years.

The two-, three-, and four-year-old children who made up the nursery-school groups in which the Murphy study was conducted lived in city apartments near a university, and their fathers were in most cases graduate students, professors, or men in other professions. In the life of the parents, this urban culture presents a strong mixture of competition and cooperation, of aggression and sympathy, which is likely to be transferred to the children in some degree even at an early age. In fact, the occurrence of "problem children" today may often be traced to "problem families" living in "problem communities," which are part of a "problem world" where competition, fear, and aggression seem to prevail too often over cooperation, courage, and sympathy. At least, as Murphy and other investigators testify, the world of adults seems to have as profound effects upon the world of children in the emotional aspects as in the intellectual aspects of development.

Influence of Teachers on Sympathetic Responses

Nursery schools are conducted presumably for the purpose of developing socially constructive behavior, such as children's response to the distress of other children, which

Murphy associates with the feeling of sympathy. How far did these nursery-school teachers themselves contribute to this development of sympathetic behavior? Too often they merely *interfered* with the children's aggressive actions, too seldom did they make helpful suggestions of things to do that would lead toward cooperative, sympathetic, or friendly action Parents and teachers often are confused and show contradictory behavior that retards the development of the children whom they are supposed to guide Too often we act like censors rather than guides to development In this study, the nursery-school children who showed the largest number of sympathetic responses were the group whose teachers guided them by giving the largest number of suggestions that one child help another. On the other hand, the only teacher repeatedly laughing at children who fell down or had an accident was in the group where the children were least sympathetic and laughed most at the mishaps of others Such evidence supports the view that sympathetic behavior may be learned in large measure by younger children from adults Consequently, heavy responsibility rests upon parents and teachers, and back of them upon the general culture of the people and the period Twentieth century American democracy may be judged partially in terms of the behavioral development of its three-year-olds.

Sympathy and the Area of Play Space

Another important factor revealed by the studies of Murphy and other psychologists is the effect of the size of the play space upon the balance between sympathy and aggressiveness Group W, consisting of twenty children, had about 2,000 square feet of play space on the roof of the nursery-school building, giving about 100 square feet per child, Group H, consisting of nineteen children, had a large playground of approximately 15,000 square feet, or nearly

800 square feet per child It is not surprising that the children with eight times the play space showed more sympathetic responses and fewer unsympathetic reactions than those crowded into the small playground where freedom of movement was restricted and interfering contacts were more frequent. Superintendents of schools and boards of education, who are responsible for the size of playgrounds and classrooms, should consider seriously the relations between available space and the development of humane attitudes not only in nursery-school children but in those of elementary- and even secondary-school age. Perhaps the physical crowding that city life imposes upon an increasing proportion of our population is a more potent factor in developing our emotional characteristics than has been acknowledged generally. Whether or not such considerations are valid, it is evident that the factor of physical space for play and work is related significantly to the emotional development of young children.

Effect of Wider and Narrower Age Ranges in Groups

Another significant difference between the two groups of children occurred in their age-range Group H, which had a larger number of sympathetic responses, had the wider age-range, twenty-six months, there being seven children under three years of age and eight who had passed their fourth birthday. Group W, in which fewer sympathetic and more unsympathetic responses occurred, were all three-year-olds within the narrow age-range of ten months Evidently the development of sympathy is promoted, among other things, by such age differences as will make the younger dependent upon the older as found in the large family characteristic of rural America in the nineteenth century. Today, in the very usual small family of our urban middle-class group, the child often grows up alone, without brothers or sisters (or with

only one sibling who in half the cases will be older), until he reaches nursery-school, kindergarten, or elementary-school age. Then he is thrown suddenly into a relatively large group of children all of whom are within a year of his own age, for the "beginner" in most schools is admitted arbitrarily after he has passed a particular birthday. Perhaps this administrative procedure of keeping children in large schools carefully segregated in age groups, where they compete with each other, works directly against the development of the roots of sympathy Unless children learn early to sympathize with those who are younger and weaker, they will have little emotional equipment for designing and establishing economic and social arrangements that will give all the members of the adult community with their varied abilities the full opportunity for which democracy stands.

In this connection, it appears that in spite of limited opportunities for social contacts at a given age level in the one-teacher rural school of about a dozen children, it is peculiarly well adapted in respect to its age range from five or six years to twelve years or older, under an alert and competent teacher, to developing healthy, sympathetic emotional behavior between different age groups. While the advantage of this wide age range is not enough to offset the disadvantages of the one-teacher school, it is necessary that teachers in larger schools recognize the problem they face and make the effort to achieve the desired healthy, sympathetic emotional behavior. In these larger schools, wise guidance may be necessary to reduce antagonisms between age groups, for example, between fifth or sixth graders, on the one hand, and seventh graders on the other, especially when the latter assume a superior attitude because of physical and social "superiority," and because they have attained junior-high-school status. In such cases special provisions may be necessary to promote sympathetic attitudes in the older pupils toward the younger.

Absence of Sex Differences in Sympathy

Summing up and classifying the factors, the development of favorable emotional attitudes toward others at the three-year-old level appears to be dependent upon a number of different kinds of environmental conditions (1) the physical environment, as represented by the amount of play space, (2) social contacts with other children, as represented by the age range, and (3) the character of adult guidance and example, as represented by teachers who censor, laugh at, or make suggestions when the child meets difficulties, and by parents whose lives are more or less filled with tension

To these findings at the nursery-school age, which may be generalized tentatively as hypotheses to be tested at other age levels, can be added another and to some persons almost surprising fact from the Murphy study. Among these young children no clear sex differences appear The girls were no more sympathetic than the boys; nor did either sex give more sympathetic responses to the children of their own sex If we find the situation different at the ten-year-old, the adolescent, and the adult levels, we must refer such development largely to *cultural* sex differentiations encountered at the higher age levels. Since sympathy in a democracy is ideally as wide as the whole group, the absence of sex differences at the nursery-school level gives a favorable basis for constructive emotional development throughout the adult population. The absence of innate sex differences in sympathetic behavior also supports the conclusion derived from evidence concerning environmental forces, namely, that sympathy and other emotional characteristics are in large measure developed in early childhood.

Importance of Individual Personality Differences

We must not conclude, however, that children of approximately equal age, who come from homes that are similar in their urban, apartment-house situation and economic level, and who attend the same nursery school for a year, will necessarily closely resemble each other in emotional development at the end of the school year. Murphy makes it clear, for example, that individual personality differences are of greater importance than the fact that on the average older children and more intelligent ones in the two- to four-year age range give more sympathetic responses than the younger and less intelligent ones

As we go deeper into the personal situation, we sometimes find a child whose inclination to be sympathetic seems to be a sign of his own insecurity in the group He wants to be accepted or even to be a leader in the group, so he is inclined to show sympathy as a means of establishing friendship with other children Of course, the nursery-school child is largely unaware that his sympathetic attitudes have any such psychological basis, but in a situation calling for a child's sympathy, his teachers and parents need to read the signs wisely and treat him differently from his classmate who may make a similar verbal or action response, but with very different underlying motives. Likewise, teasing often appears to be the aggressive outlet of a frustrated or somewhat fearful child. It is clear that the teacher and parent must not superficially accept every sympathetic action as an evidence of favorable emotional development nor every aggressive act as evidence of sheer maliciousness or "domination", rather, they must be able to distinguish early between constructive social attitudes and warnings of emotional maladjustments.

When the observer concentrates too much upon one aspect of development, he falls into error. This fallacy may be illustrated by the relation between sympathy and aggressive-

ness in the development of some children Both sympathy and aggressiveness are forms of social-emotional behavior, and, as in the case of other sorts of social behavior, they increase steadily with age from two to four and beyond In the Murphy study, Julius, a boy of forty-nine months, was labelled the "biggest fighter" until an analysis showed that he was also the "greatest sympathizer" Untrained observers of children in school often make similar errors in evaluating the development of a child because they notice only the more obvious aspects of his behavior. Julius was really a child of great social responsiveness, and he rapidly picked up from his culture two of its conflicting characteristics, leaving the ultimate social-emotional outcome of both Julius and his culture in doubt Still greater doubt may be felt about Alex, a bright, imaginative youngster a month older than Julius, who remained aloof from the group most of the time, absorbed in dramatic patterns of his own, for he neither fought nor sympathized He presented the observer with little significant evidence, being non-social rather than anti-social Such contrasts between individuals of similar age suggest the need for acute observation and diversified guidance by teachers.

Diverse Contacts of Individuals within a Group

Again, the pattern of social contacts made by different children may vary greatly. One boy, in the Murphy study, concentrated his social-emotional relations upon a few of his mates, while another spread them over a majority of the nursery-school group. One girl received and gave an approximately equal number of responses, while another received many more than she gave. Among the younger children, some received more contacts from the older children than did others In the group with the narrow age-range of ten months, practically all the children were involved in group

activities, on the other hand, in the group with an age-range of over two years, the four-year-olds were definitely superior to the younger children in the amount of group activity, while the two-year-olds in this group exhibited varying degrees of aloofness. Thus the argument for social-emotional development through the use of a narrow age-range scores a point to match the greater number of sympathetic responses occurring in the group with the wider age-range.

All these various evidences sum up to a recognition of the diverse and complex effects upon the emotional development of an individual that are inherent in any social situation, especially in early childhood, and they show the different and complementary values that come from living in narrow age-range groups and wider age-range groups These diverse possibilities also suggest the need for wise guidance by sensitive, tactful, observant adults who do not merely turn children loose in a playground, who do more than censor aggression, who avoid crude emotional responses of their own to children's difficulties, and who offer constructive but diversely appropriate guidance depending upon the child and the occasion.

Relations between Emotional and Intellectual Aspects

The student of development has to remember also that intellectual and emotional growth proceed hand in hand When a child falls off the teeter and cries, intellectual curiosity and sympathetic patting, or a verbal "too bad" expressed by his playmate are equally genuine aspects of the playmate's development. Often a verbal suggestion from an adult enables a young child to identify himself with the victim, although he cannot make the intellectual-emotional jump unaided. Susan Isaacs illustrates this adult "lending of eyes" to Dan, a three-year-old, who held on to a rope after his turn, while Tommy was using it. The teacher merely

asked Dan, "If you were doing it, would you want Tommy to hold the rope?" His reply, "No," and the action of letting go the rope apparently involved a new social view of the situation [11] Any attempt to study one phase of development, such as the emotion of sympathy, will reveal fruitfully the development of other sorts of emotional behavior, such as aggressiveness, the attempt will set forth the patterns of social contact and will throw light upon intelligent behavior and the use of language both to express sympathy and for purpose of thought Indeed, the word "thoughtfulness" carries both the connotations of intellectual activity and of sympathetic feeling, thus typifying the unity of diverse developmental aspects.

In the home, likewise, the wise parent frequently is able by kindly questioning to help the young child in facing thoughtfully the causes and consequences of social difficulties One intelligent mother, when her little daughter, Betty, reported that her playmate, Annie, would not play with her any more, asked what caused Annie to leave. Betty replied, "I would not let her play with the new dress I made for my doll" The mother asked "What do you think you can do to make Annie happy again?" Betty's face brightened, "I could make her a doll dress for her very own like the one I have" Surely this child of pre-school age had learned something about analyzing a situation to find a cause for a social-emotional difficulty She had also learned how to make a start toward constructive social relationships.[12] The achievement of emotional adjustment and of intelligent social thinking are inseparable aspects of a child's development.

[11] Susan Isaacs, *Social Development of Young Children*, Harcourt, Brace and Co , New York, 1933, p 275

[12] Enid S Smith, "Teaching the Preschool Child to Reason," *Child De velopment*, 1937, vol 8, pp 191-3.

Theory of Emotional Development

If we turn back, after such extensive studies, as does Murphy, to state a theory of the growth of sympathy, we may find "crying" in infancy to be a simple reaction to another's cry just as a baby hearing his own crying is stimulated by the whole crying situation to cry still more.[13] In other words, the *appearance* of sympathy may have its roots in a conditioned response, so that the sound of crying or laughter, the visual perception of smiles at eight weeks, or of frowns at a later age may produce in the infant their counterparts with little or no intelligent awareness on his part of any social relationship with the other person. (See Chapter XI)

The actual development of the feeling of sympathy, so that it becomes an integral part of the young child's social behavior, involves complex psychological relations with other persons that lead into the diverse theories of learning and personality. For the present, we can conclude that emotional development is based, like motor skill and the use of language, upon a biological basis of sensations and feelings throughout the body associated with perceptions of the environment, and as well upon fundamental needs, but the particular patterns of fear, anger, joy, sympathy, and affection are determined by the social experience of the individual in every case. While the experiences of infancy and early childhood have very appreciable effects upon the quality of the emotional life, there is always more or less possibility of modifying emotional behavior at later stages toward more constructive forms.

The Meaning of "Needs" in Democratic Education

Attention should be called to the fact that the development of emotional behavior is accompanied by a particular-

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[13] Lois Barclay Murphy, *op cit ,* Chapter 9

ization of the fundamental needs as an aspect of individual development That is to say, some of the human organism's basic needs may be satisfied in a number of ways. The point is that except for several of the obviously physical needs—rest, elimination, and in infancy, food—the precise ways in which needs are satisfied is not prescribed by "nature." The ways are culturally determined. The word "needs," however, is often a source of confusion because one person may use it to designate fundamental biological needs, such as those for food, another person thinks of needs as those desires for friends, possessions, education, and a particular way of life that develop through social experiences in a certain culture A third person may mean by needs those qualities that the child or youth *lacks* from the point of view of the adult observer and his social program.

Needs are sometimes divided into two classes, one class is regarded as "inner" and personal, while the other is referred to as "outer" and belonging to the social environment Such variety and distinctions in usage lead to conflicting programs of education one group of educators are inclined to follow the child's immediate desires and acquired interests, while the opposing group merely asks, "What does the child lack among the qualities needed in adult citizenship?" Then, too, the student of child development who is aware also of democratic social objectives seeks to use the word "need" with a meaning that includes the reorganization of emotional attitude and of social behavior involved in wholesome development from infancy to adulthood.

It appears to us that the term "need" is best used when restricted to the designation of basic requisites of the organism, requisites which through education may come to be satisfied in a variety of ways. The need for food is apparent and continues throughout life, though it can be satisfied by means of many foods and diverse schedules of eating. The need for receiving and giving sympathy is equally basic, but

its development may be encouraged or thwarted significantly during childhood and youth The developmental organization of emotions and needs travels hand in hand as the child meets new experiences in his home and with his playmates. We must not forget, however, that this development of felt needs does not proceed automatically through mere maturation but should be the outcome of thoughtful reconstruction of experience by the developing individual and his guides Consequently, the manner in which needs and emotions become organized in each person's behavior is determined jointly by the nature of his bio-psychological organism and by his choice or the imposition of a way of life Dictatorial procedures will produce emotional responses and desires inconsistent with wholesome development of the individual, for they do not give the needed social and physical security, nor do they make provision for and respect individual differences, nor do they have regard for the intellectual and emotional integrity of the individual Such procedures and effects are far different from those that emerge in the midst of experiments in democratic living under the guidance of adults who understand and exemplify the principles of social democracy [14]

So the student finds that the degree of emotional development and its direction depend in large measure upon the family, the school, and the community in which the child is reared. In a society like that of the United States, where many different emphases are found in different families, the emotional organization of the three-year-old depends mainly upon the ideals and practices of his family and upon other social influences, including possibly a nursery school. Dictatorial treatment may make of him a fearful follower of first one leader and then another, or an ineffective withdrawer from activity, or a rebellious objector, or an aggressive bully.

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[14] See, for example, Boyd H Bode and V. T Thayer, "Needs and the Curriculum," *Progressive Education*, December, 1940, pp 532-40

A family and a society harried by conflict and confusion be-
tween competition and cooperation, between dictatorship and
social democracy, may produce uncertain, erratic, unstable
individuals A democratic home, nursery school, and com-
munity, if all are socially organized, may produce well bal-
anced, well adjusted individuals, who stand courageously on
their own feet and, who enter freely, harmoniously, and at
times vigorously into the activities of home, school, and com-
munity The intimate relations between human development
and the customs of a society become clearly evident to the
trained observer who has followed the establishment of the
basic organization of emotional experience from infancy
through early childhood Social progress can occur only when
there is adequate emotional development that comes from
the intelligent guidance of children in their activities by
parents and teachers whose own lives are emotionally ade-
quate because they live in a democratic society that brings
individual needs and social organization into happy accord

Further References

Chapter XVIII of this book, entitled "Emotional Stability," ex-
    tends the consideration of emotional development and in-
    cludes additional references on emotional aspects of behavior

Prescott, Daniel A , *Emotion and the Educative Process,* Ameri-
    can Council on Education, Washington, D C , 1938.
    A valuable survey of physiological and psychological theories
and facts concerning emotions; educational and developmental
implications are pointed out

Richards, Esther L , *Behavior Aspects of Child Conduct,* The
    Macmillan Co , New York, 1932
    A helpful volume dealing largely with older children.

V

EARLY PATTERNS OF SOCIAL DEMOCRACY

In Informal Groups Aged Five and Six Years

THE PROBLEMS of social development are as important as they are difficult in a community, nation, or world that attempts to live in a democratic way Democracy is actually a very complex form of social organization—a late and high achievement in human development. Before a student adopts a democratic program of teaching and living, he may well inquire whether the scientific findings concerning social growth from infancy through early childhood give promise that the contrasting democratic ideals of individual freedom and social cooperation both may be achieved under any form of social organization. The writings of the past about human nature and its possibilities are full of confused and contradictory statements. Shall we accept the view that man is a social animal, truly gregarious, and naturally fond of group living even under crowded conditions? Or shall we believe that the human race is made up of selfish individuals who prefer to fight endlessly for physical, economic, and social supremacy? Instead of taking time to follow these contra-

dictory speculations, which have filled so many pages since man began to record his notions about himself, today we turn to the recent investigations of relations that actually occur in infancy, early childhood, and among five- and six-year-olds

Social development evidently depends upon biological growth, increasing acuteness of perception, improved motor skill, a widened use of language, developing intelligence, and the changing quality of emotional attitudes Whatever scientific facts have been established concerning these aspects of development may constitute a broad basis for an understanding of social development. We know that the infant learns gradually in the first year, through clearer visual and auditory perceptions, to distinguish his parents and friends from strangers In regard to his equals in age, experiments have shown that when two infants of five months or younger are placed near each other they give no indication of being aware even of each other's presence It is not until the latter half of the first year that two infants are stimulated by each other's presence into touching, cooing, attacking, or repelling activities [1] In his second year the child initiates social contacts more actively as he becomes able to toddle toward a friend or back away from a stranger The beginnings of language in the second year and its extended use in the third make the two- and three-year-olds much more social persons as their understanding of the family conversation grows and their ability and inclination to make remarks of their own increase. Likewise, the favorable progress of the emotional aspects of development—courage, caution, humor, appreciation, sympathy, and friendliness—is so intimately related to social contacts during early childhood that psychologists commonly speak of social-emotional development We conclude from these facts that social development is not a separate phase of

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[1] Charlotte Buhler, "The Social Behavior of Children," Chapter 9 in *Handbook of Child Psychology,* Carl Murchison, editor, second edition revised, Clark University Press, Worcester, Mass , 1933, p 378

a child's life but is an inclusive term that takes in physical growth, sense perception, motor activities, speech, and the feelings of the child in so far as these various aspects affect the child's relations with other human beings

Since scientists do not find definite hereditary patterns determining the modes of speech in early childhood or the character of emotional expression, the student scarcely will expect to find social development, which is clearly an outcome of these other lines of development, restricted either to competitive individualistic patterns or to cooperative social action As a matter of fact, the careful observer finds many contrasting forms of social behavior in early childhood, which have in the past constituted the bases for divergent claims about the character of human nature. At the present time this variety of patterns is taken as indicating the need for studying conditions outside the child that modify his action as well as for attending to his growing capabilities that are the outcome of his biological equipment operating in a particular environment.

Diverse Patterns of Social Behavior in Infancy

Buhler's studies of infants between the ages of six and eighteen months show that three different kinds of behavior patterns exist and may indicate fundamental dispositions somewhat independent of environmental factors.[2] These types are called *socially blind, socially dependent,* and *socially independent* behavior The socially blind infant acts as though no other child were present, he does not look at the other child with any concern but goes on with his own play without paying attention to the other's movements. The

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[2] Charlotte Buhler, "Spontaneous reactions of children in the first two years," and "Personality types based on experiments with children," *Proceedings and Papers, Ninth International Congress of Psychology,* The Psychological Review Co, Princeton, N J , 1929

socially dependent, on the other hand, is either inhibited or stimulated by the presence of the other child, the former's movements are evidently determined in large measure by those of the latter The socially independent child is different from either of the other types, for he is aware of the other infant but is neither inhibited or stimulated by him. He may defend himself from the other child, but he does not become aggressive, he may join in an activity, or he may suddenly turn away to do something for himself Thus these three forms of social behavior suggest more or less separable "types" at an early age Since no correlations were found in this study between the diverse family backgrounds of these infants and their behavior, the investigator infers that the differences are due to "a primary disposition," which implies a difference in biological constitution It is, nevertheless, by no means certain that the differences in behavior and "types" may be assigned to a "primary disposition." For subtle differences in the early environments give rise to differences in behavior of infants and children. Such environmental differences include health, sibling relationships and attitudes, parental attitudes, opportunities for learning and for social activity Taking each "type" by itself, however, regardless of the causes of *early* distinctions, it is clear that future development will depend upon the capabilities of the youngsters and upon the kinds of opportunities for activity afforded by the social environment. Anyone would acknowledge that decent democratic citizens might emerge from the socially blind, the dependent, and the independent group of infants, if each individual received appropriate social treatment.

Imitation, Suggestion, and Parallel Play

When students begin to inquire about the causes of early social development in children, the process of imitation has frequently been offered as though it constituted a simple,

clear explanation Is imitation really an "instinct" or tendency that directs and modifies a child's action so that his behavior reproduces whatever patterns he encounters? Scientific studies show that in the first year of life numerous motor activities of the hands, vocal organs, and the whole body are reproduced by children In the second year the manipulation of material in accordance with the behavior of adults is increased In this progressive development, imitation may be considered as following rather than leading motor accomplishment That is, the imitation of motor activities occurs because the child is becoming *capable* and *interested* in such activities at this age As he grows older his range of imitation enlarges with his increasing motor ability, acuteness of perception, use of language, and understanding of processes In other words, imitation is not a special instinct or tendency, rather imitation is a general term covering the fact that at all ages the individual receives from his fellows *suggestions* of action, which he follows in so far as his similarity of biological equipment permits, when he becomes *interested in and capable of participating* in the activity. Imitation is more often a sign of social attitude than of blind automatic reproduction The pattern of action formed by a boy in throwing a ball may be similar to that shown by his father or his older brother, but the boy's pattern of throwing belongs as genuinely to him as the eye movements the reader is now making belong to the reader. Every one of us, however much we may pride ourselves upon personal initiative and independent action, needs to remember the profound social debt we owe to our companions whom we have seen using tools and reading books or heard speaking words and whistling tunes. Imitation is a broad term, which too often obscures rather than explains more or less complex social processes

The actual development of social behavior—of patterns of conduct in association with other individuals—is a process that reaches far beyond the acquisition of personal abilities

even though the aids derived from observing others and imitating them are included. Living democratically *with* others is something more than learning individual skills and patterns of conduct *from* others. Moreover, the adequate social development of a child requires extensive contact with other children who are near his own age level During his first two years of life the young child may acquire in the family under parental guidance the emotional attitudes of independent courage and of willing sharing, which are appropriate for democracy As the child reaches the two-, three-, and four-year-old levels, however, he scarcely can get from these contacts with *adults* the full measure of social experience, nor are the family contacts with a brother or sister a year or two older and with a new baby, who tends to supplant him, sufficient for the child of nursery-school or kindergarten age

The most appropriate age for the beginning of extensive contact with children of approximately equal age is an open question The relations of infants under six months of age appear insignificant Just beyond the end of infancy, with the very significant accession of speech beginning at the average age of about eighteen months, we find some retardation of normal language development in the case of twins, who depend upon each other for a large measure of their social contact [3] This fact suggests that language development, and thereby other aspects of development, are enhanced, at least in the second year, by contact with older children and adults who use speech appropriately and more extensively It appears, then, that not until the child has reached the two-year-old level, when locomotion and speech enable him to have significant social contact with his equals, is he a possible candidate for the nursery school. The social value of the nursery school to the two-year-old is still limited, however, by the predominance of "parallel play" at this age level, that is, two

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[3] Ella J Day, "The Development of Language in Twins I A Comparison of Twins and Single Children," *Child Development,* vol 3, 1932, pp 179-99

or more children engage in the same kind of play, such as building with blocks, along side of each other, but they do not yet cooperate in building one thing, although they do enjoy being together Two-year-olds are not really interested in what other children say or do, for they treat other children much like inanimate objects, which sometimes must be pushed out of the way. During the year of three-year-oldness a transition occurs, which is probably stimulated by the beginning of dramatization, toward playing part of the time cooperatively with one or two other children, but these groups commonly shift, after a few minutes, both in the activity pursued and in the children making up the group [4] The value of nursery-school experience at the two- and three-year-old levels consists, among other things, of a preparatory emotional and social experience that forms an essential basis for social democracy.

Gradual Development of Self-Dependence

With this brief recognition of the gradual, social-emotional changes that occur, we will pass over the beneficial effects of nursery-school living at the two- and three-year-old levels to a consideration of the beginnings of social democracy that have a cooperative character at the four-, five-, and six-year-old levels At one of these ages most children in the United States enter a kindergarten or elementary school to begin their first extensive social contacts with their approximate equals in age The question of the maturity level—that may in exceptional children be a year or more above or below the chronological age—at which children should begin school is to be answered in terms both of our increasing knowledge of emotional and social development and of the kind of society we seek to build. For example, if we wished to have a society

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[4] Arnold Gesell and others, *The First Five Years of Life,* Harper and Brothers, New York, 1940, pp 251-3

controlled autocratically by the aged, we might attempt to keep all children, youths, and the middle-aged continually under the domination of their elders rather than permitting them to achieve substantial social organization within their own age group But our democratic aim involves a wide sharing of responsibility by all ages, so we propose to give youngsters opportunity early to take social responsibility with their equals as well as their unequals in age

Before considering the social effects of a child's entrance into group activities outside the home, we must at least recognize a fundamental change that is involved in this transition Whether we call it "psychological weaning" or "developmental detachment," we recognize that the dependent infant, who has become so closely attached to his family, especially his mother, must gradually become independent as a step toward wider social contacts Gesell traces the developmental sequence in "out-for-a-walk behavior" from the one-year-old who stays close to the adult, through the dawdling two-year-old, the three-year-old who refuses to hold the adult's hand except at crossings, the four-year-old who runs ahead of the adult and resents holding the adult's hand even at crossings, to the five-year-old who can go to kindergarten by himself and even help a younger child to cross the street. Under "adjustment to school" the sequence runs at eighteen months he adjusts well to his nursery-school group if he does not see his mother depart, at twenty-four months he may be able to say good-by to his mother; and at thirty-six months good adjustment in coming to school and leaving may begin, until as a five-year-old he is both able and willing to come and go to kindergarten safely alone or with other children The social-emotional achievement of detachment from home and relative self-dependence is a fundamental step without which constructive social advancement toward interdependence within the group of children cannot begin. Democracy involves for every individual a sequence beginning with de-

pendence in infancy, gradual emergence into relative independence and self-dependence, and then, without losing one's individuality, going on to the social interdependence and cooperation with one's peers at first in small groups but eventually upon a much wider scale [5]

Informal, Dramatic Play of Five-Year-Olds

What kind of activities and contacts normally occur among young children at the present time in the United States and similar cultures where free play in small groups is permitted? The child's life from three to six seems filled with play in which he dramatically reproduces the adult activities that he observes and the adventures which come from his playmates, story-telling adults, or the movies and the radio In this dramatic play he uses his own body—perhaps for a horse—supplemented by sticks and other materials, which must be transformed imaginatively, or by toys that are replicas of adult tools from dishes to airplanes. At the three-year-old level several children may engage in similar forms of dramatic play side by side using suggestions from each other but not coordinating their activities in any significant way. To the casual observer these three-year-olds may appear to be cooperating, but a closer analysis of their conversation usually will reveal the lack of organization and the immature plane of their social development. If these same children are given an opportunity to play together for an hour or more on school days through the three- and four-year-old periods, we find at the five-year-old level a distinct advancement into organized cooperative play The size of the preferred groups increases slightly from the group of two children that has the preference until about the age of three. At the five-year-old level, however, these spontaneous groups do not often become larger than four or five children so that under free play

[5] Arnold Gesell and others, *The First Five Years of Life*, pp 258-61.

conditions the school room of twenty-five children at any moment appears to contain a considerable number of small groups—twos, three, fours, and fives, as well as several children who, for the time being, are isolated from their fellows

During these months of dramatic group play the children learn to get along well together with less and less guidance from the teacher in easing emotional adjustments involving fear, anger, and more complex difficulties At the same time the personal initiative of each individual may increase together with his motor skill, his comprehension of the adult activities reproduced, and his ability to comment appropriately to his companions on the group project The length of time a group will continue in a particular dramatization also has extended far beyond the short interest span of the three-year-old, so that some five-year-olds return day after day, for as long as a week, to the same "train" or "boat," which they have made of blocks, boxes, and chairs. Much of their development can be described in terms of growing emotional maturity—less angry crying when things go wrong, less fear of new ventures, and more sympathy for others, all of which definitely support social relations. One indication that the contact with other children in school carries distinct benefits comes in the observation made frequently by the parents that a child seems older in the kindergarten than when he is at home The school made up of children not far apart in age can help the child to reach a more mature level of social responsibility, a level which can scarcely be approached even by the most democratically conducted home with the handicap of striking inequality in age.

Social Organization around Objective Interests

What is the key to social organization in a five-year-old group? Social contact forms primarily and most substantially around an objective center of interest made by concrete ma-

terials that promote significant activity A jungle-gym or a "high-low" constitutes such a center in which mere climbing may produce in some cases personal rivalry and appropriate remarks. From this meager form of social activity the group of two or three children may progress to dramatic play in which the jungle-gym becomes an imagined airplane As this objective center grows in meaning through the actions and remarks of a group of three five-year-olds, one or two other children may join the airplane play on the jungle-gym. Again, a sand box with dump trucks may become a center for group activity lending itself to a more highly organized type of dramatic activity, because the materials are movable while the jungle-gym is not. Still more effective socially is a supply of blocks and boxes, which may be built into a train, thus stimulating organized, cooperative activities by half-a-dozen five-year-olds who carry on the work of engineer, fireman, conductor, and passengers Thus a constructive project, in which interest and activity can be shared readily, constitutes the basis for much social advancement at this age level—and perhaps at all age levels.

Leadership and Grouping among Five-Year-Olds

But what are the specific relations of the children to each other in such a socially organized group? Is there a leader who directs each group activity and keeps it going? Of course, the underlying assumption is that the teacher of the five-year-olds only provides the materials and does not attempt either to outline the dramatic story depicted nor assign "parts" to the group members The degree of social development depends upon the extent to which the group of "equals" organizes itself. Consider the situation on the opening day of school, when twenty or more five-year-olds, strangers to one another, come together for the first time. They must begin by getting acquainted, one individual making contacts with an-

other, while at the same time each is becoming familiar with the many objects in the new physical environment, such as the jungle-gym, blocks, and other equipment, as well as with the teacher. Now getting acquainted at this age is not a matter of being "introduced." Names may come along later, after two boys have determined their relative abilities in climbing the jungle-gym or their reactions to each other in a physical scuffle. Muscular strength and courage may give certain children more or less definite leadership over others in these preliminary contacts. Out of these early experiences several different types of social relationship commonly arise. A protective relationship may be formed between a shy child and a self-assertive one. Some children receive devotion from numerous others without much reciprocal social exertion on their part, for they merely seem to be popular.[6] Again two children may develop a friendship that resembles the "chumming" of later childhood. Of course, anti-social dislikes and fears also occur and must be eliminated. Evidently, the emotional reactions of a child will determine in a large measure the degree and kind of social relations he achieves. On the more intellectual side, the ability to make new suggestions for activity, such as building a garage out of blocks, gives one child leadership in the concrete projects, with other children following more or less closely. Thus leadership and grouping begin slowly upon a somewhat complex physical, emotional, and intellectual basis as social development goes on from day to day. A careful analysis of the social relations established will show great differences among the children, although each individual may be making actual progress beyond his previous attainments.

A study of twenty boys and girls between the ages of two years ten months and six years seven months showed that one boy, who was able to make appropriate suggestions for

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[6] *Handbook of Child Psychology*, p. 394

activities and to organize them well, achieved contact easily with every one of the spontaneous groupings, each of which contained usually two, three, or four children [7] He also became the leader in whatever group he was playing What kind of child was he to exert such unusual leadership at the age of four years and ten months? First, he was *not* a dominating bully, second, he had initiative and organizing ability —that is, emotional *and* intellectual qualities, third, the suggestions he made usually appealed to the group, thus indicating a certain conformity with the common interests of the group This "conformity" must not be translated into adult terms of the politician with both ears to the ground of his constituency, but preferably as a similarity in maturity and kinds of interests Such a position of leadership in relation to all the children in a group of twenty is very exceptional, the ordinary expectation being that such leadership extending throughout the group does not arise until several years beyond the five-year-old level. Even in this exceptional case only a few children were organized under this leader at any particular time. Other children who led various groups for short periods generally lost their following by insisting on wishes of their own that diverged from those of the group. One point, among others, stands out· dictators are being rejected definitely at the five-year-old level under relatively free conditions.

In such a group of twenty, several of the children will make only a few acquaintances and will very rarely lead any activity. The majority of the children will rise to a higher social level by acquiring in a few weeks a wider range of acquaintances and by participating directly or indirectly in the leadership of the various group projects While these social activities are occurring, there is also continuing much individual play The ultimate result of a year in which social

[7] *Handbook of Child Psychology*, p 382

play gradually increases for all the children is a distinct advance of five-year-olds into the democratic process of sharing common interests, and at the same time each child attains more distinct individuality At the end of the year under skillful guidance each individual has achieved greater ability and more interests of his own, and each is more able to cooperate effectively for any social achievement.

Functions of Teachers in Informal Social Development

It is obvious that the process of social development described in the previous paragraphs is extremely informal The teacher is especially careful that her presence and behavior shall not make the group take on patterns that are formal. The teacher is responsible for knowing five-year-olds well enough to have at hand on the first day plenty of appropriate materials and equipment to encourage individual and group activities. From day to day as she discovers the special interests and abilities of these particular five-year-olds, she may rearrange and supplement the equipment. From time to time she may suggest new forms of play, usually to individuals or small groups, or she may encourage a shy child to join a group appropriate for him. Occasionally, when a suggestion for change in activity and behavior is not accepted by a child, the teacher may need to restrain the child who at home or elsewhere has established definite anti-social habits that disrupt the social ventures of other children By action and word the teacher may do much toward promoting free, informal organization of groups; but the free-play period never becomes a time for "following the teacher" Other parts of the school day may be devoted profitably to periods for lunch, rest, discussion, story telling, and rhythms, in which the whole group is organized into a more or less definite pattern of behavior under teacher leadership. The deeper social-

emotional development that underlies democratic living occurs largely, however, in the freer play periods when activity is essentially of, for, and by the children themselves.

The benefits that accrue to other aspects of development from free social contact with "equals" during the ages of four and five are extensive. The motor skill that comes to a child as he tries to do the things that he sees other children of his size doing is evident to any observer. The sharing of ideas on approximately the same intellectual level is often more appropriate and helpful than anything an adult or older child can suggest. The emotional problems and undesirable habits that frequently become troublesome in the family—such as thumb-sucking, masturbation, selfishness—often disappear gradually when the social environment is broadened in a healthy way through active participation with other children Even spontaneous "good manners" in the sharing of material possessions may appear along with the sharing of common interests. Thus the diverse aspects of development progress together, although the central consideration during this period may be the establishing of social relations with persons of similar ages, abilities, and interests

Dominative and Socially Integrative Acts of Teachers

The various ways in which the teacher may function in the kindergarten to promote or retard the actual social contact of the children were classified in a study by Anderson under the two general headings of "domination" and "integrative behavior." [8] The "domination behavior" of the teachers included more or less dictatorial acts that obstructed the social, emotional, and intellectual development of the children. The categories under "domination" included: (1) determining a

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[8] Harold H Anderson, "The Measurement of Domination and of Socially Integrative Behavior in Teachers' Contacts with Children," *Child Development*, vol. 10, 1939, pp. 73-89

detail of activity or acting for the child in carrying out a detail, often to rush the process to completion, (2) direct refusal of a request, (3) relocating, reseating, or placing a child in a different relation to other children or property than the relation selected by the child, (4) postponing and slowing up the children's activities, thus holding back the faster ones and interfering with originality and individual variability, (5) disapproval and blame, (6) warnings, threats, and conditional promises, such as "Now if we all sit nicely and keep our hands to ourselves, we might have two stories", (7) calling to *general* attention during group activity, thus diverting each child from his individual or small-group activity, (8) rationing material, which deprives the child of exercise of judgment concerning the amount of material he needs for the job in hand. These are all ways in which teachers and other adults continually interfere with the behavior and development of children.

Without assuming that the categories above are entirely dominative or dictatorial, we may consider the categories placed under "integrative behavior" as those which stimulate the development of children, do not stifle individuality, and yet create new and harmonious differences within the active group Here are some of the more social and more democratic functions of teachers (1) approving of activity that is socially constructive, (2) accepting a different suggestion from a child, (3) extending an invitation to activity, (4) making a statement or asking a question regarding a child's expressed interest or activity that carries no presumption of opposition, antagonism, disapproval, or urging, (5) helping a child to arrive at a better definition of a problem or a solution, without giving the final answer, (6) participating incidentally and temporarily with the children in a joint activity, (7) granting permission on request, (8) expressing sympathy when appropriate. These functions of the teacher justify her presence in the kindergarten and her active attention to each

of the children so that she knows what is occurring in every case without feeling called upon to interfere constantly How difficult is the functioning of the adult with children may be seen from the results of Anderson's study, which involved scoring three experienced and accomplished kindergarten teachers upon their individual contacts with their children Two of the teachers had twice as many dominative as integrative contacts with the children, while the third teacher had *five* times as many dominative as integrative contacts. Evidently, many teachers have a long way to go before they function in ways that fully promote the social development of the children whom they guide.

Six-Year-Old Individuality and Social Organization

Under conditions of freedom to dramatize, in which the teacher's behavior is more integrative than dominative, what patterns of social organization can the student of human development expect at the six-year-old level? Substantial advancement will occur at the age of six, if it has been preceded by a year or more of living together under the guidance of teachers who understand how much young children may teach each other—without being aware that they are doing so—about the ways of democratic living A new accomplishment at the six-year level is that at times all twenty-five children may work together on one large, dramatic-play project In a city school some child gets the notion of building a city on the wide floor using blocks, boxes, and other raw materials at hand. Gradually, more and more children associate themselves with him, each bringing a contribution of his own—a garage, a fire-house, a river with bridges and boats Finally, all the children choose to join the "city" play in such ways that trucks, automobiles, buses, and boats move through the appropriate traffic lanes with only normal jams. Thus a six-year-old's city becomes more or less smoothly organized

into vital activity Likewise, village children may build their village, putting the school in as prominent a place as the firehouse and the filling station Country children may lay out a well equipped farm with house, barn, chicken coop, well, fields, pasture, and woods enlivened with moving horses, cows, and tractors Each group of children organizes its dramatic play into the social-economic patterns that it is experiencing daily The six-year-olds live a more highly organized life than the five-year-olds, but it is still in terms of the "here and now " They are not yet ready to move out into the wider social realms of "far-away" geography and "long-ago" history [9] Their great achievement consists in teaching themselves to cooperate in a relatively large group upon the play level within the school environment.

Although activities in which all the children "work" together for a common cause, such as the running of a farm, village, or city, are achieved occasionally on the six-year-old level, some of the play is still individual and much of it occurs in smaller groups Whether the child plays by himself or with others in groups large or small, a rise in individuality is occurring In the midst of more or less social play each child gains skill and gets new ideas so that the observers remark on his initiative and independence A year's advance in the use of language has made the six-year-old more articulate in his explanation of his work to others, and the comments of the other children in response are more specific than a year earlier It is evident that the two aspects of democracy—individuality and social organization—are actually complementary and are developing at the same time through the same individual-social activities.

Another step toward advanced social organization that occurs at the six-year-old level is the introduction on the playground of running games having definite rules. The

[9] Lucy Sprague Mitchell and co-authors, *Another Here and Now Story Book,* pp 231-4

group learns to play tag in various forms or some kind of "hide-and-seek." The six-year-olds check each other's adherence to the rules of the game. They set standards of fair play by common consent—the beginning of democratic sportsmanship with equal rights The crude non-cooperativeness of five-year-olds becomes a more definite spur to activity on a higher emotional level. The game with its rules reaches far beyond the informal freedom of dramatic play Perhaps games give the six-year-old a foretaste of the "law and order" established in democratic communities on the adult level.

Steps toward Social Maturity in a Democracy

As we consider the six-year-old's growing independence and cooperativeness, it may be enlightening to glance at the steps that lie ahead in his progress toward social maturity in these two related phases of his development. Under the classification, "Self-Direction," *The Vineland Social Maturity Scale* [10] emphasizes the economic and other aspects of home and community life, which may not appear in the school program For example, while the normal five- or six-year-old can be trusted with only small sums of money to make specific purchases, the nine-year-old makes minor purchases for himself, exercising choice and discretion, while the twelve-year-old of average maturity buys his own clothing accessories, such as ribbons, ties, underwear, and shoes. At fifteen the youth should have his own spending money of an appreciable amount, say about a dollar per week, assuming of course that the family budget permits it, either as an allowance or earned, which he uses with reasonable discretion for significant personal needs rather than for immediate enjoyment. At eighteen or nineteen, youths of standard social maturity should begin to control their major expenditures,

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[10] Edgar A Doll, *The Vineland Social Maturity Scale,* The Training School, Vineland, New Jersey, 1936.

while in the next few years they begin to use money provi-
dently and provide for the future through savings, insur-
ance, and investment—as indicated by our society's approved
practices.

While these steps into economic independence are occur-
ring, other aspects of "self-direction" also develop. At the
age of eleven, the individual should be able to care for
himself and perhaps a younger child for an hour or more at
a time at home or at work But ordinarily, until he is fifteen
or sixteen he does not leave home, even during the daytime,
without accounting for his movements in advance. A few
years later, at eighteen or nineteen, the socially mature youth
should take responsibility for going out at night as well as
during the daytime without accounting for his movements in
advance and without getting into difficulty, although, in our
society, his parents may require that he return home by a
certain hour. By the time he is twenty, the individual reaches
a degree of maturity in which he directs his own social affairs
with consideration for the welfare of others, taking personal
responsibility and exercising discretion in his activities

When we turn from the steps in personal independence to
his advance in the Vineland category of "socialization," we
find a gradual change in the loose game-play of six- and
seven-year-olds to the more difficult games with complex
rules at the age of twelve to fourteen, such as Hoyle card
games, baseball, tennis, and pool, while at the same time
during these years young people in groups of similar ages
and interests begin to participate in dances, parties, trips,
and outdoor sports without adult leadership The further
steps that should be made before the twenty-fifth birthday
include contributions to the support of others, being a good
neighbor, and contributing to social welfare on one's own
initiative as an active member, possibly in a welfare organi-
zation, while sometime beyond the age of twenty-five the
socially mature person of high attainments can be expected

to promote civic progress as a prominent member of a group contributing to the public welfare, to hold a position of public trust in the community, and to advance the general welfare in philanthropic, religious, educational, cultural, scientific, industrial, and patriotic fields

Although it is a very far cry from the cooperative play of six-year-olds to the attainments of personal independence and social cooperation and leadership, as indicated in *The Vineland Social Maturity Scale,* it is through vision of such attainments in a democratic society that parents and teachers can guide children wisely It is fully as important that the adult guide shall foresee the kind of development that lies ahead as to have accurate knowledge of the past history of the child's development Lest the social accomplishments of six-year-olds be overemphasized, the student has to remember that the youth of twenty-one enters a society infinitely more complex than that of the six-year-old in his schoolroom and on his playground. The youth of voting age should know how to live wisely with a great variety of individuals. For this purpose, he should have a reasonable understanding of essential economic facts, of government, of social agencies and institutions, of his culture, of at least the elemental biological and social needs, of his democratic heritage This is a large assignment, but it is not beyond reach; and it is a challenge to education to prepare youth for living in our society. These accomplishments, of course, are not possible in modern society unless people acquire the intellectual and social tools of intelligent reading, writing, and at least elementary mathematics. They require also a knowledge of geography, history, and the elementary sciences These demands suggest a life in which study plays an important role, especially through later childhood and adolescence when attitudes are in process of development, but study complementing actual experiences in democratic living in the home, on the playground, in school, in govern-

ment, in business and industry, and in all aspects of community living

The first seven years may lay an organized foundation for life—physically, manually, emotionally, intellectually, and socially—that will carry the individual far toward the kind of maturity desired in a democratic citizen If children have been subjected, however, to dictatorial treatment by parents and older siblings in the home, by teachers in the school, and by companions on the playground for seven long years, or if their development has depended upon chance associates or lack of associates, the teacher of seven-year-olds begins with discouraging prospects She will have a group of potential "problem" children, including the bullies, the fearful, the nervous, the selfish, the lazy—altogether forming a broad set of excuses for continuing the dictatorial regime Some adults labor under the misconception that intellectual needs seem to press at this age for rapid, routine, specific learnings that dictatorship claims it can produce On the contrary, any teacher who appreciates the spontaneous, creative, flexible, constructive interests and capacities of the human organism, even in early childhood, and participates in the growing understanding of human development can face hopefully and courageously the bad effects of neglect and ignorance so often involved in the "raising" of the young child Even at the age of seven, it is still possible to begin optimistically the application of scientific findings concerning human development in the interest of democracy.

Further References

Chapter XIX of this book, entitled "Social Organization," presents studies of social relations at later ages and includes additional references on social development.

Anderson, Harold H , *Domination and Integration in the Social Behavior of Young Children in an Experimental Play Situation,* Genetic Psychology Monographs, vol 19, no 3, 1937

A study showing that children's behavior is very much a function of the behavior they meet in other individuals Implications for a general theory of behavior

Isaacs, Susan, *Social Development in Young Children,* Harcourt, Brace and Co , New York, 1933

A study of children's behavior in nursery school, interpreted on the basis of psychoanalytic theory Valuable material, whether or not one agrees with the theoretical interpretation.

Sherman, Mandel, and Henry, John, *Hollow Folk,* Thomas Y. Crowell Co , New York, 1933

A book dealing with the effects of a sub-culture (isolated in The Blue Ridge Mts , about 100 miles from Washington, D C) upon development, especially of intelligence and attitudes

VI

THE MATURE TEN-YEAR-OLD

IT WILL be the purpose of this chapter to bridge the
span of years from age five or six to about ten by pre-
senting a summary picture of children at the latter age level,
or to put it otherwise, by taking a cross-section, as it were,
to see the results of the biological, psychological, and social
processes of development discussed in preceding chapters as
they have taken place between the age of six and the age of
ten We select the age of ten years as a convenient milepost
in human development because since the age of five years (a
convenient stage discussed in Chapter V) the cumula-
tive and interacting effects of continuous mental, social,
and physical development have brought about noteworthy
changes in the individual. This does not imply, however,
that at the age of ten, or thereabouts, the child suddenly or
mysteriously undergoes changes which make him a "different
person," unconnected with his past. On the contrary, it is
literally true in human development that in some degree an
individual's past history extends into the present, and into
the future.

Cultural Forces

During this period of about five years in the individual's
life, information and skills are, of course, acquired But it

is not merely a period of acquiring and using tools, whether
in the form of a hammer, a paint brush, arithmetic, or vo-
cabulary This phase in the life-cycle is eminently one of
socialization, and we shall, therefore, turn to that aspect of
development first.

Cultural forces and interpersonal relations, as we have
already indicated, are effective in the child's development
from birth. The child, by the time he reaches the age of
about ten years, even in the most democratic society, has
been subjected to a rather long and very significant process
of socialization under the influences of social institutions,
practices, conventions, taboos, and mores This process
whereby the individual learns from his social environment
may be called socialization.

The cultural forces whereby socialization is effected are
those common, relatively fixed, persisting, standardized, and
traditional modes of behavior of a society They are not
alone the organized systems of activities which spring ration-
ally from the kind of life imposed by the environment in
which one lives and develops; but they consist also of the
irrational beliefs concerning the nature of that environment.
Among the cardinal phases of a culture—rational and irra-
tional—are the laws, customs, religion, art, music, literature,
science, superstitions, industry and business, and forms of
recreation. Culture is thus not a mere abstraction, it is not a
metaphysical something that "floats about." Culture is part
of the very "fabric" of persons and exists only insofar as it
is manifested in people's activity.

During his development which, of course, always takes
place in some kind of an environment, the child is engaged
in a great variety of activities; he is learning certain skills,
he is acquiring a vocabulary, he develops and expresses cer-
tain attitudes, he learns ways of conducting himself, he de-
velops certain interests, he is acquiring and building up a
whole set of social values which will significantly affect his

subsequent behavior And in his subsequent behavior and
interests, he will often be unable to locate their origins—so
subtle and gradual are the effects of cultural forces, so un-
consciously is much of socialization achieved

Because the development of every child in a group is in
part the product of the group's conventions of behavior, he
comes to regard these as a fixed part of nature for want of
familiarity with alternatives of behavior, and he thus serves
by his conformity to make change slow and difficult Yet
culture must undergo some degree of evolution, because it
arises from the dynamic interrelationships between the so-
cial heritage and the individual If this were not so, there
would be no warrant for believing that children today, in
some respects, are not what children were fifty or more years
ago, or that, in some respects, contemporary adults and
adolescents differ from their predecessors While in physical
organization man has changed but little since the beginning
of recorded history, the most enormous changes in social or-
ganization have been made, and changes are still going on
at an almost uncontrollable rate It is inevitable then, under
the circumstances, that man's "personality," behavior, atti-
tudes, and habits should undergo change also Just as the
individual affects and is affected by his physical environment,
so he affects and is affected by his culture Hence, we have
a circular relationship between the individual and the cul-
ture in which he develops. Hence, also, differences in the
behavior and accomplishments of national groups and so-
called "racial" groups, or of any other large groups as we
shall see, are intelligible in reference to the physical setting
and cultural heritage.

Caste and Class as Forces in Development

Although there are certain cultural values in general, there
are at the same time, in any complex society, like our own

for example, sub-groups of caste and class, each of which has some values and behavior conventions of its own This is a fact which it is particularly important for teachers not only to recognize but to take into account in a significant degree, for unless they do so they can neither understand nor deal sympathetically, soundly, and effectively with children whose behaviors, attitudes, and values are "different" or "undesirable" This point is best illustrated by lower-class Negro children in the South [1] There are, in the first place, the usual *caste* distinctions as between White and Negro in general the Negro's social and economic opportunities are restricted, the Negro must accept a variety of discriminations against himself without complaint, the Negro must always act deferentially toward white people, the Negro must not show any aggression or resentment toward white people.

The Negro's caste training, as acquired in his own family relationships and in his contacts with the white population, starts early and is steadily reinforced by experience as he grows older.

> At the age of five or six, the child learns that he must sit only with his fellow caste members on the bus or in the theatre, and that he must attend schools which have only children and teachers of his own caste. Within his family he receives instruction in the behavior required toward members of the other caste As he becomes adolescent both the definiteness and the parental reinforcements of this instruction increase greatly, for it is then that the occupational and sexual taboos become matters of urgency.[2]

In short, the Negro in the South, regardless of his capacities or achievement, must appear subservient, and must appear to like it. Such caste distinctions cannot help but

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[1] See Allison Davis and John Dollard, *Children of Bondage,* American Council on Education, Washington, D C , 1940.

[2] Davis and Dollard, *op cit.,* p 250.

produce frustrations and resentment in the Negro, adult and child alike, with consequent effects upon their personalities.

Within the Negro group itself, however, there are *class* distinctions which further affect the children who develop in the lower, middle, or upper Negro class For although any Negro child, regardless of class, must make at least an outward adjustment to Negro-White *caste* distinctions, he must acquire also the modes of behavior, observe the conventions, and meet the demands of his Negro *class*, if he is to continue his membership in that class. The young child of the Negro lower class, for example, has developed a degree of autonomy and has departed from childhood patterns of behavior to an extent unknown to middle-and upper-class Negro children, for at the age of ten or eleven the lower-class Negro child may have had heterosexual experience, is competent in self-defense, lacks fear of physical punishment, and is disinterested in the usual school offerings, because at an early age he has learned the restrictions that are placed upon him both as a member of a lower caste and as a member of the lowest class within the caste Gambling and magic are accepted class ways, church attendance is casual at best And, for the most part, he lacks goals of aspiration, not out of inherent deficiencies of character but because the society in which he lives and develops does not encourage them—in fact, discourages them He does, however, have pronounced social and economic fears, for he and his family live under the threats of rigid caste distinctions with their attendant denials and frustrations

Middle- and upper-class Negro children, on the other hand, though they must live under the same rigid caste distinctions, also have fears of physical punishment, for aggression and serious fighting among them are taboo, as are premarital heterosexual relations They are, however, expected to be diligent in school and to attend church, they

must be careful of their language, they must avoid gambling, pool parlors, and night clubs Their goals of aspiration are toward the better or best of social and economic opportunities available to Negroes, toward a desirable marriage, and a respectable family life.

In other words, in addition to the rigid Negro-White caste distinctions, there are differentiated strata within the Negro group, each stratum having its own special class behaviors in which the children develop their ways of acting and living And by the time a child has reached the age of ten or eleven years, these ways are rather well established, having been learned by experience and precept. So well, indeed, have parents, other adults, community, and other social agencies functioned in the development of the child that ".   these class controls are an equally important source of *resistance* to efforts by educators, social workers, or politicians to change the motivation and habits of individuals in our society." [3] This being the case, it is obvious that schools, for both Negro and white children, are severely handicapped in their efforts to develop in their pupils what educators regard as desirable habits, attitudes, levels of aspiration—in short, social values and ways of democratic living—without the cooperation of all social, political, and economic agencies outside the school. Without their cooperation, the efforts of the school may seem too much like the teaching of precepts and irrelevant activities, for even quite young children are able to discern the functional or non-functional values of learning. This is not to argue against the desirability of teaching certain habits, attitudes, and skills in the schools, but it is essential that we recognize that serious discrepancies between life in the school and life out of school—particularly when schooling is over—will often result in frustrations and disillusionment The fact, as pointed out above, that class controls are a source of resistance to efforts of educators, social workers,

[3] Davis and Dollard, *op cit* , p 259

and the like, is evidence of the strong force of class ways and class controls, as well as being evidence of the relatively non-functional and perhaps unrealistic efforts being made by educators and the others If the work of teachers in socializing children for democratic living is to be most significant and effective, then the community at large must be educated to democracy and practice it

The variation in characteristics of a sub-culture within a larger cultural unit, which we have just been describing in the case of Negroes of the South, illustrates a situation which is found in the white caste as well For among the white population there are, of course, class distinctions as there are among the Negroes And, as in the case of Negroes, the several classes in the white population have their own conventions, habits, and values under which their children develop, which they acquire, and which, therefore, contribute to personality differences between children living in and coming from different social and economic classes Thus the ten-year-old white child from the so-called lower class may be contrasted with the ten-year-old from a more privileged group, even as in the case of Negro children from different Negro strata. In fact, except for the *caste* distinctions based upon color, " . Negro adolescents seem in most respects to act and feel 'just like a white child' who has a similar type of personality and has been trained in a parallel class position " [4] Caste and class membership contribute at the same time to both feelings of kinship and feelings of difference among children. For the purposes of education, therefore, it is important to note that children coming to the schools will

[4] Davis and Dollard, *op cit*, p 279 See also W. Lloyd Warner "American Caste and Class," *American Journal of Sociology,* 1936, vol 42, pp 234-237, "Social Anthropology and the Modern Community," *American Journal of Sociology,* 1941, vol 46, pp 785-796, also by Warner and others, *Yankee City Series* (to be published by the Yale University Press, of which volume 1 is, *Social Life of a Modern Community* by W Lloyd Warner and Paul S Lunt, Yale University Press, New Haven, 1941)

be under a variety of social pressures, often conflicting, both in their homes and in the general community (See Chapters IV and V) Unless this fact is taken into account, the varied behaviors, attitudes, and goals of different children cannot be correctly evaluated, nor can the methods and aims of education be effectively conceived and put into practice.

Influence of the Radio

There are, however, some factors or forces in our general society which are common in a degree to all children, adolescents, and adults, and which contribute to their psychological and social development. Noteworthy among these common forces are the radio, movies, and reading materials

The radio has become one of the most significant social forces In the United States as a whole about 78 per cent of all homes have receiving sets. Whereas in some countries the radio has been pre-empted for the purpose of exercising political control, in the United States it has been utilized for commercial advertising, although tastes, interests, and attitudes are influenced by the broadcasts But in all countries, the net psychological result is social control through influencing and shaping the views, tastes, and habits of listeners. Whether exploited for democratic or anti-democratic ends, for intellectual, esthetic, or commercial purposes, the effect on millions who hear the same programs is bound to enhance national stereotypes and conformities of belief, feelings, attitudes and action The force of radio can be appreciated when it is realized that in the United States approximately one billion man-hours per week are spent in listening to broadcasts A very appreciable fraction of this time is spent by children listening to general programs and to those designed especially for them, since many children begin to listen at five or six years of age, and some as early as four. In fact, one child of only thirty-four months accepted

and used a verbal expression of his playmates who had learned it from the radio This, very probably, is not an isolated instance. The relative maturity of the ten-year-old's interests may be judged from the fact that after the age of nine radio programs offering subtle comedy, drama, and news (both comments and facts) increase in popularity, whereas programs declining in favor, beginning at the same age, are those with elements of phantasy, or those containing nursery rhymes and chatter. There is a marked degree of maturity in these preferences and dislikes.

Influence of Moving Pictures

The moving picture, though not so pervasive as the radio, enjoys the advantage of greater intensity and vividness On movie entertainment the American people spend about 150,000,000 man-hours per week, and of the "movie-goers" about twelve percent are between ages seven and thirteen. The movie is capable of making deeper and more sustained impressions, because motion, of which it is the best vehicle, gives it high dynamic effectiveness. Furthermore, it provides the individual with an opportunity to identify himself with some character. Its dramatic integration of appeal to eye and ear, together with the power to excite and maintain emotional tensions, produces a powerful effect of realism. Thus moving pictures are a tool of great force in the accumulation of knowledge and concepts, on the development of attitudes, on the directing of emotions, and on the shaping of such other patterns of human conduct as behavior, skills, styles of dress, modes of play, and the like. At the same time movies *could* also be a force in the further development of desirable appreciations, for it has been found that children would be favorable to a larger production of moving pictures based upon books of recognized genuine dramatic and artistic quality.

Reading Interests

While reading is still a major source of formal and informal instruction, the most significant books and treatises mean nothing to the bulk of our adult population, nor to our child population who, in the great majority of cases, of course, have not yet attained the maturity of development or of interests to want or need these books and treatises While the printed presentation of significant matters escapes the many, the assimilation of viewpoints and attitudes from easy and intellectually barren publications is widespread. These publications are patronized perhaps not for their barrenness so much as for their easy readability, and perhaps also for the vicarious satisfaction they provide Formal education, therefore, has an important role in improving reading ability and reading interests, with consequent indirect as well as direct effects upon viewpoints, attitudes, and activities, and hence upon personalities

Some data on reading are available giving us information regarding the interests, activities, and maturity of ten-year-olds Both boys and girls between ages eight and ten are interested in stories of children in other lands Animal stories of a realistic character and stories of adventure appeal to boys, whereas those of home and school life are more appealing to girls Between the years ten and twelve, boys' interest in adventure increases, but in addition stories of invention and those informational in character begin to find an important place in their reading Girls, on the other hand, during these ages show an increasing preference for fiction, while accounts of adventure and stories of people also become increasingly popular.

In attempting to account for the types of reading material which find favor among children of ten, and those within about a year of that age, it is necessary to bear in mind that their preferences are based upon the types which are avail-

able to them and which are encouraged by parents and teachers That is to say, the children's tastes and selections are in part a matter of culturally permitted opportunities From among these opportunities they will select those which are within range of their apprehension, either emotionally or intellectually, or both. At the same time, there does seem to be reflected in their preferences an interest in the new, an interest in an expansion of knowledge It is also possible that their interest in adventure and attendant excitement is due in part to the fact that children at these ages are themselves very active and get a vicarious satisfaction from such books, even as adults do from more sophisticated works It should be apparent that books of the kind these children read can be made vehicles for the development of attitudes, both desirable and undesirable, from the viewpoint of the social groups in which the child develops and lives.

Play Activities

Since play activities are pre-eminent in childhood, it is desirable to observe the play interests of the age level under consideration and to note their significance By the age of nine or ten we are able to observe much more marked specificity of activity, both as to skill and social function in the group, than is the case at the age of five or six Certain children assume a marked degree of leadership, such as being captain of the team, whereas others seem to have found their places, at least temporarily, in smaller and more limited roles. Generally speaking, children at age ten recognize much more definitely the capacities of their companions for various activities and encourage them in these This indicates that by this age, individual capacities, skills, and other personality characteristics have begun to differentiate sufficiently—whatever the reason—to give each child his own significance in the group This situation is quite consistent with the views

of educators and psychologists that the period from ages six to ten is one of great learning, not only of skills and information but of group conventions, social codes, and emotional expression Furthermore, such differentiation and specificity are necessary, for by nine or ten most children are far enough along in their development to participate in organized team or group activity and to adapt their individual capacities to rules and common purposes This is an important characteristic, for it signifies that children of this age not only engage in but grasp the behavioral significance of cooperation and are developing a social awareness derived from their free and spontaneous play activities.

Sex Differences in Interests and Activities

The effects of cultural influences are evident, of course, in children's play, for, among other things, automobile riding and attending movies are favorite recreational activities Furthermore, cultural influences are beginning to make themselves felt in the matter of sex membership and sex differentiation In fact, although some sex differences in activity are to be observed in children five or six years of age, appreciable sex differences in play appear between ages eight and ten, girls, for example, engaging in jumping and skipping rope, listening to stories, and playing house, while boys romp and run races instead While these activities are consonant with an interest in physical activity in both sexes, social conventions prescribe, to a degree, the manner in which this interest shall find expression. It must be noted. however, that sex distinctions in respect to interests and activities have steadily undergone social change, the distinctions are not prescribed by "nature" except as there are sex differences in strength and size. In addition, during adolescence and adulthood, some differences are due to limitations imposed upon girls and women by periodic physical handi-

caps or disabilities Indeed, older boys and girls have numerous play and recreational activities in common, although each group also has its own

As evidenced by play and recreational activities, and by physical maturation as well, children at the age of about ten are differentiating themselves into girls and boys, female and male, rather than being just children. Yet it would be a mistake to assume that the so-called traits of masculinity and femininity are "by nature" associated with their respective sexes Physical differences there are, of course But sex differences in personality and activities, recreational as well as occupational, are largely socially prescribed This can be demonstrated by a number of instances For example, in one contemporary primitive society (the Arapesh, in New Guinea) both sexes display behavior which in our own society would be regarded as distinctly feminine; both sexes are unaggressive, gentle, and solicitous of the needs of others. Another contemporary primitive society in New Guinea (the Mundugumur), however, presents a distinct contrast, for both men and women are aggressive, cruel, and ruthless. Still a third present-day primitive society in New Guinea (the Tschambuli) presents yet another picture and, as compared with our own society, shows a reversal of sex traits. There, women exercise economic power, women do the trading and bartering, men rarely engage in anything utilitarian, each man is skilled in one or more of the arts, male distinction is based on elaborate costumes, excellence of dancing, and artistic craftsmanship These and other functional differences are reflected in the personalities of the members of the two sexes, the men being subservient, sensitive, and shyly graceful, while the women discharge their practical responsibilities efficiently and impersonally. Such personality variations in different societies of the human species show that conformity in behavior is environmentally imposed through play and otherwise, and that differences in standards from group to

group are made possible by the operation of different environments upon the extensive educability of the individual

Sub-Group Membership

We must emphasize again, however, that though in a complex society there are pervasive national ideals and forces, personalities within that society are not cast in a single mold, nor are they capable of description by a single term. The reason for this is not only that every person has a more or less distinct genetic constitution, but that he is also a member of a number of sub-groups within the larger unit. These sub-groups are determined by type of employment, social and economic status, religious affiliations, kind and degree of education, urban or rural residence, and the like. It is inevitable that children living their lives in certain sub-groups, developing under sub-group patterns, and experiencing the inter-personal relations of their respective sub-groups should before adolescence show some of the traits that characterize the adults under whose influence they come. In the United States, for example, studies of masculine and feminine personality traits have shown that a superior environment, education, and training, in the case of women, tends to be associated with "masculinity", in the case of men, with "femininity." The same holds for occupational classification [5] What this means, of course, is that in certain sub-groups in this country men and women are more nearly alike than in other sub-groups due to the conventions and conditions under which their members live. And since their characteristics are not matters of mere over-night development we must look for their roots, for the most part, in both the larger and smaller groups of which they have been members since early childhood Not only are cultural forces

[5] Lewis M Terman and Catharine C Miles, *Sex and Personality*, McGraw-Hill Book Co, New York, 1936, pp 463-464

of larger groups and sub-groups at work, but children will seek to develop, will foster, those characteristics which bring them approbation and status within their groups In one society one of the esteemed characteristics might be competition and self-aggrandizement, in another it might be quite the opposite, self-effacement

Most culturally and socially determined sex differentiations have a retarding effect on democratic processes and democratic development For such differentiations do not rest upon a "natural" basis, they tend to become social stereotypes, hard to alter, they deny a higher degree of common participation and sharing, they fail to foster and utilize abilities, wherever found The ideal of the public school, on the contrary, is to encourage the removal of irrational distinctions, to give every child and adolescent opportunities for full development, and to clarify intelligently those sex differences that do exist.

Concepts and Generalizations at the Ten-Year Level

In the course of children's mental and personality growth we encourage in them the development of generalizations and concepts. Such development is, in fact, essential if an individual's perceptions and behavior are to transcend the immediate specific situation, if he is to progress beyond the stage at which he defines more or less abstract concepts and words as "when" something or other happens (E g , "Charity is when you give a Christmas basket to the poor.") Until and unless an individual attains the level of generalizing and conceptualizing, he is incapable of extended thinking, without generalizations and concepts his behavior is a matter merely of responding to a specific situation. Attitudes can, of course, be formed with respect to a series of rather discrete situations, but if an individual's behavior and attitudes are to exhibit the characteristics of reflection and integration he

must have reached a level of generalized concepts To attain that level demands an adequate degree of intellectual development manifested specifically in terms of language What do we find in the case of children of ten or thereabouts?

Available evidence seems to show that children in the upper grades of the elementary school (V to VIII) know relatively little about many important social concepts such as democracy, standard of living, aristocracy, patriotism, personal rights, trade-unionism, and the like, in spite of the fact that the period from nine to fifteen years of age is one in which the acquisition of meanings is significant All that can be said now regarding this state of affairs is that such is the condition, but the causes thereof cannot be readily and easily assigned. It is probable, however, that many of these concepts which relate to the society in which these children live elude them because the concepts are neither functional nor significant in their lives Yet there is some evidence to show that a majority of children of about ten are able to learn and comprehend such concepts as unemployment, strike, and wage-earner, whereas relatively few can master broader and more abstract concepts such as capitalism, economy of abundance, and industrial revolution [6] It would appear to be a fact, then, that certain social concepts are within the intellectual range of these youngsters, while others are not. It is not possible, however, to specify, without trial, which are and which are not within the range. We note, however, that those concepts which the children do master are capable of specific and concrete illustration and observation, whereas the concepts more difficult for them are not so easily or concretely illustrated. Nevertheless, there are doubtless numerous other social concepts vital for democratic living which children of

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[6] F C Michell, "Ability of Fifth Graders to Understand Certain Social Concepts," *California Journal of Elementary Education,* vol 4, 1935, pp 20-28 See also Kai Jensen, "The Social Studies," 38th Yearbook, *National Society for the Study of Education,* 1939, Part I, Chapter XVII.

about ten could comprehend and incorporate into their lives, in the form of attitudes, if they actually experienced and lived them at home, at school, and in the community. Among such, for example, are the concepts of democracy, self-government, personal rights, equality, and the like. What is needed is that the child's sphere of life be so organized that these and other concepts actually be lived rather than being presented merely as precepts. That they can be lived has been amply demonstrated in intelligently conceived and conducted schools That these and other attributes of demo-cratic living and learning are desirable and effective in chil-dren's development is indicated by recent experiments con-ducted by Kurt Lewin and his students.[7]

The Role and Force of Language

At this time it is relevant to mention very briefly the role of language in a culture and in concept formation discussed above, although earlier in Chapter III we were concerned specifically with language development, and shall be again in Chapter XVI, as it is related to thinking The use of lan-guage is the use of symbols, and a symbol is anything which represents anything else. Man's most distinctive mental abil-ity is associated with his capacity to use symbols, a form of behavior the use of which has not been demonstrated in any other species The significance attached to language devel-opment is shown, for example, by the eagerness with which parents watch for and report the appearance of the child's first utterance that sounds like a word (although these early "words" are in fact not really language), by the place that language occupies in tests of mental ability, and by the prominence of language in the individual's education.

[7] Kurt Lewin, "Experiments in Social Space," *The Harvard Educational Review,* 1939, pp 21-32, K Lewin et al, "Patterns of Aggressive Behavior in Experimentally Created Social Climates," *Journal of Social Psychology,* vol 10, 1939, pp 271-299, Ronald Lippitt, *An Experimental Study of Authori-tarian and Democratic Group Atmospheres,* University of Iowa Studies in Child Welfare, vol. 16, 1939, no. 3

The initial trends are congenitally given for making the sounds out of which language is fashioned, but for actual development into symbolism, a culture and effective social intercourse are essential The specific nature of the language acquired with maturation will depend upon the language of the particular group in which the individual is reared and upon the definition of social relationships as well as upon the discrimination of situations which his group has crystallized by convention and expressed in speech For this reason, among others, an individual reared under a dictatorship differs from one reared in a democracy, not because the two speak different languages, but because the language of the former expresses culturally imposed ideas which are different from the ideas of the latter

In teaching a child certain ways of behaving, certain attitudes and concepts, adults may utilize the group experiences of the past and transmit them through language The child's behavior can thus, to a certain extent, be made to depend upon and can be advanced by the accomplishments of the past Through language, his development also may be inhibited by the past. But, in any event, his behavior will be influenced through the instrumentality of language Yet, that instrumentality is the more effective and significant in an individual's own life if he is able to abstract the language or symbols from behavior and situations which he himself has experienced Without such experience, symbols are lacking in substance and often remain relatively meaningless and vague so far as one's activities are concerned For example, except where the Eskimos are in contact with warlike Indians they neither engage in nor have a word for war Thus war is an unthinkable concept to them, and so long as left to their own culture they not only will not engage in war but will be incapable of thinking in terms of group destruction. Of course, it would be possible for a visitor to teach these Eskimos the *word* "war", but so long as the word has

no operational significance, so long as warfare has no actual place in their lives, the word has significance largely as a *sound* or as a visual pattern At best the visitor might belabor the Eskimos with explanations and illustrations, but even so, as a symbol the word "war" at most can become for them but a very much diluted substitute, an attenuation, of the real war experience in all its significance Too often this process of attenuation is the one employed in rearing children, too often conceptual symbols are taught without context or substance

It may be generalized that in the language of a people is revealed its practices and thoughts in relation to personality ratings, social hierarchies, economic practices, social distances, ideals of ethics and beauty, as well as prejudices But at the same time, so far as influencing behavior is concerned, it must be remembered that the language and concepts of a people have grown through the actual necessity to express or characterize something that was part of their lives. A remarkable case in point is the fact that the Arabs have about 6000 names for the camel, varying in accordance with the different functional relationships that the camel can enter in the Arabs' culture Camels are named according to their particular use, names of breeds, degrees of nobility of lineage, lands of origin, age, stages of dentition and walking, physical characteristics, mental and behavior characteristics, and other traits

It is apparent that language, serving as symbols of cultural experiences and phenomena, is an important instrument for cultural transmission to the young Not only is it the vehicle whereby concepts and behavior may be generalized and communicated, but it is pervasive in effect, for, quite aside from constant use between individuals, it forms a large part of the substance of one's thinking Reflecting the values and norms of the social groups, language will place emphasis upon what the group finds functionally relevant. Through the agency

of language, the stereotypes of a culture become "natural" to its adherents Thus, through experience and symbols functionally derived, each individual developing in a given culture comes to understand his position in the group, the seat of authority, the duties he owes to others, the rules of conduct, the magical rites which insure success and ward off evil, and everything else that the group may, rationally or irrationally, consider the business of living By the time a child is about ten years of age he will have established many behavior stereotypes, his approach to and apperception of new experiences will depend in part upon those stereotypes, as is clearly indicated in the behavior of Negro and white children, already cited.

Democracy, equality, totalitarianism, goodness, badness, charity, justice, and the like, do not exist alone, in isolation from actual situations and activities wherein they operate. Unless we are very cautious, we tend to overlook the status of the symbol which is only the *representative* of a generalized way of behaving, and we are in danger of coming to regard the symbols as having an independent existence, whereas they can have no existence without the things or situations from which they have been verbally withdrawn. The implications of this fact for the education of the young who are to live in a democratic state are obvious. If a child has to acquire number concepts, and learn to paint, or saw, or model clay, "by doing," he must likewise learn a pattern of life "by doing" [8]

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[8] Children under self-government, for instance, showed a much more favorable attitude toward law observance than did those not having pupil self-government Cf F Peters and M R Peters, "Children's Attitudes towards Law as Influenced by Pupil Self-Government," *Bulletin of Purdue University,* vol 37, 1936, pp 15-26

The Status of Motor Development

Thus far, our discussion has dealt almost entirely with cultural forces, our purpose being to point out that during his first ten years of life the child has developed socially in accordance with the character of both the larger and smaller social groups within which he is reared Throughout this period, as is to be expected, the child is developing his sensory, motor, and intellectual capacities, he is developing emotionally and physically as well Though these aspects are, certainly, operating in the course of social development of the child as a functional whole, nevertheless, they are significant enough educationally to merit separate and specific mention

Motor performances are among the more easily and more precisely measured capacities. These are, of course, extremely important forms of behavior, for children are active Furthermore, they acquire knowledge and interests through their ability to manipulate objects in their environment

Motor development has been measured in terms of (1) speed of voluntary movement, (2) ability in fine, well coordinated movements; (3) accuracy of voluntary movement, and (4) steadiness of motor control The first of these is generally measured through speed of tapping (with finger, pencil, or stylus) over a period of from, say, ten to thirty seconds. The results show that speed of this voluntary movement increases steadily throughout childhood and that the rate of the ten-year-old is approximately three-fourths that of the adult. Experiments in speed of voluntary movements involving larger muscles and bones reveal that although the child of ten or twelve is still far from adult in physique, he is not nearly so far removed from adult level in speed and accuracy of these movements. In fact, he is well advanced toward the adult level The second kind of motor ability, often included in tests of "mental ability" of young children,

has been measured by tests requiring the child to button things together, to put pegs into holes, and to fit variously shaped blocks into the right holes In all these operations improvement is continuous and rapid in early childhood, so that even by the age of six the child already has considerable skill From this age on, it may be suggested, further improvement will be largely a matter of training in precision. Experiments designed to measure accuracy and precision of voluntary movements (tracing, aiming, thrusting a stylus into a hole, and the like)—the third category above—show that improvement is very rapid during childhood and that by the age of ten a boy or girl is within a very short distance of early adult level. In respect to the fourth category, steadiness of motor control, once again there is rapid improvement during childhood, although the absence of reliable norms makes it impossible to say how far along toward the adult level a child of a given age has progressed

These motor capacities exhibited by children are the product of bodily (muscular and neurological) maturation and learning. During his first ten years of life a child ordinarily has had considerable opportunity for motor and manual activity, although the best facilities for development are often lacking Yet by the time children have reached the age of ten, too many have spent about five years in a formal school where their linguistic and verbal abilities are cultivated at the nearly total sacrifice of motor capacities The latter, however, if cultivated could and should be a source of knowledge, interest, and creative achievement. The cultivation of motor capacities in working with wood, plastics, paints, cloth, and musical instruments should be an integral and fundamental part of a school curriculum rather than just a recreational appendage or channel for the sublimation of frustrated energies

Levels of Sensory Perception

In the simpler mental functions, namely, sensory perceptions, the degree of development of ten-year-old children varies with the function measured Ability to discriminate the simpler and more common colors (red, green, yellow, blue) develops rapidly, so that between ages five and six most children have reached the maximum level in this respect But ability to discriminate various shades of each of these colors continues to develop beyond the age of ten, the usual adult capacity being attained at the age of twelve or after In so saying we do not imply that "nature" has established the very early teens as the level at which the finer color nuances shall be perceived It is possible at present only to say that under prevailing conditions of development, under prevailing experiences, this is the general age level for this particular function It is quite conceivable, in fact probable, that under different conditions of training and experience maximum status would be attained earlier or later, as the case may be.

In the matter of auditory discrimination, evidence shows that most children—excepting those with impaired hearing—are able to discern the different degrees of loudness at the age of four, and even much earlier in some cases. The discrimination of pitch, however, continues to improve beyond the age of ten This improvement may be due to the continued growth and differentiation of the auditory nerve processes and brain areas, combined with the training, however meager, that children get in music during their grade school careers That pitch discrimination and other auditory functions can be improved has been shown by studies on the subject This fact is also known to individuals who themselves have attempted to learn to play a musical instrument, even though with only slight success. There are, of course, individual differences, the extreme cases being those who

are "tone deaf" and who, therefore, can show no measurable improvement

The "Span of Attention" at Age Ten

It is customary in discussing mental development to point out that an individual's "span of attention" increases with age during the period of growth By the age of ten, measurements of attention show a very marked increase over the five-year level, and the curve of growth continues to rise steadily beyond the ten-year level This does not mean that a "power" or a "faculty" of attention grows in strength What it does mean is that as the individual develops, his environment becomes for him richer and fuller than it was earlier, therefore the environment has become more meaningful and there are more items to be interested in and to attend to When conditions of the environment and the individual are such that objects and their structures and organizations are observed, in whole or in part, we have a state of attention This is neither mysterious nor novel.

In the course of mental development, what was to begin with a relatively homogeneous and undifferentiated environment becomes richer in details, relationships, and meanings In the case of young children, however, due to their immaturity and limited range of interests, even relatively simple situations cannot be expected to hold their attention for long The same physical objects will hold different possibilities and have a different significance for children of various ages. For example, a construction set for a young child is only something to pile up or to bang with, whereas for an older child there are numerous patterns to be made, and the construction materials themselves are materials to be investigated. A child's degree and range of attention, therefore, are dependent upon his age, level of mental ability, experience, interests, purposes in behavior, attitudes, and internal

bodily states, as well as upon the nature of the external situation

"*Attention*" *in Learning*

Since a child at ten years has had a long history of maturation and experience, it is to be expected that there will be many more parts of his environment that will get his attention than was the case earlier But it is also true that there are many objects and concepts that ten-year-olds, and other age-groups, could perceive and attend to if these objects and concepts were presented in such a way as to be functional and within the child's range of apprehension Specifically, and as already stated, the concepts of democracy, tolerance, equality, justice, cooperation, etc, as now taught, are not grasped by ordinary ten-year-old children Efforts to teach these concepts at this relatively early age, therefore, are said by some persons to be futile In fact, deprecators of social studies at the junior high school level maintain that time spent on these studies is so much wasted effort because, they hold, the pupils are not ready for nor interested in the issues and concepts involved This criticism is justified only so long as the materials are presented in the abstract, as so many verbal exercises Under such conditions attention lags and shifts, and interest is not evoked But such need not be the condition if, as already indicated, verbal concepts are given a basis in fact and experience and are permitted to emerge therefrom.

This same argument may be applied to a variety of activities, such, for example, as an understanding of and a possible interest in what is abstractly taught as the "binomial expansion," but which can be easily demonstrated and understood by means of a relatively simple visual geometric presentation (Figure V) Our point, then, is that children's perceptions and range of attention could be considerably enlarged and incorporated into their behavior (if it is

thought desirable to do so) under more appropriate conditions of experience, and that children's capacity for attending and developing interests is too often underestimated.
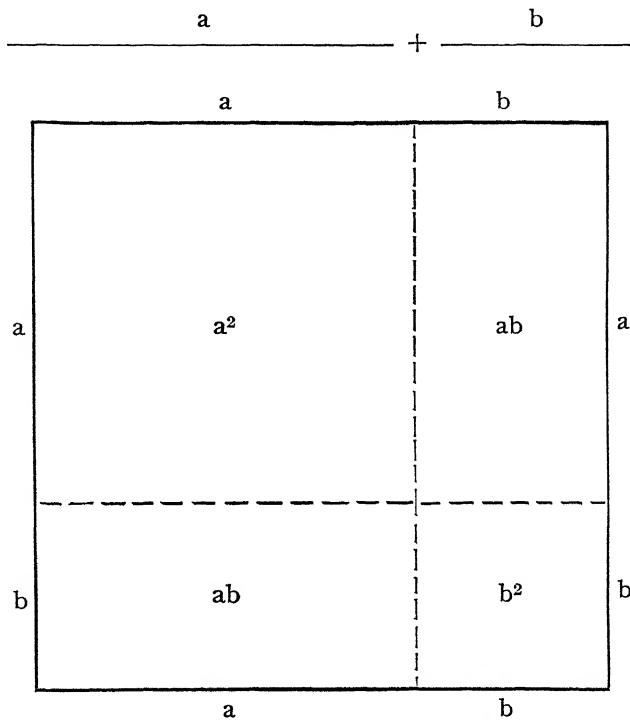
$$a \qquad + \qquad b$$

FIGURE V —Geometric Illustration of the Binomial Expansion
$(a + b)^2 = a^2 + 2ab + b^2$

This applies to children of the age of ten as well as to those who are younger or older.

Remembering and Forgetting at the Ten-Year Level

It is a human trait to remember and to forget But an individual does not remember equally well at all ages, nor

does he remember all types of materials and experiences equally well The notion that children's memories are superior to those of adolescents and adults, and that, therefore, childhood is the best period during which to "cultivate the memory," still has some currency in popular opinion, although psychological evidence has disproved it.

The facts are these In *rote* recall of materials (the mere reproduction of a series of words, digits, nonsense syllables, and the like) the capacity to remember increases throughout childhood and into late adolescence or early adulthood In the ten-year old child this capacity has by no means reached its maximum, although it is considerably greater than it was, say, at five The capacity to remember *logical* materials (remembering relations, meanings, ideas) follows a similar course of development. In fact, there is evidence suggesting that this capacity increases until about the age of twenty, or even later.

The capacity to remember is not, however, just a matter of age as such, until the maximum is attained. The nature of the materials or situations to be retained, the relation of these to the individual's experiences, interests, purposes, attitudes, and goals, the emotional content of these materials and situations, the individual's level of intelligence—these are all involved in the manifestations of an individual's capacity to remember. As a child grows older his experiences not only multiply but they may lead to the formation of particular interests, attitudes, and goals, and the recall of particular materials, experiences, and situations will be affected by them Remembering, furthermore, is facilitated by the ability to verbalize an experience. And since vocabulary grows steadily—though at different rates—throughout the educative process (formal and informal), it is to be expected that recall will be aided, in successive years of growth, by this growth of language competence.

Problem-Solving Reasoning and Thinking

It is a common view among psychologists that children, even very young ones, are able to solve practical problems, that is, they are able to reason. *Reasoning* includes all the methods, materials, and experiences that are organized and applied in the process of solving a problem, while *thinking*, a particular kind of reasoning, is problem-solving in which symbols (language) are used.[9] Conversely, it is not true that problem-solving ability is "born" during immediate pre-adolescence or adolescence. Experiments in learning performed with young children and lower primates (monkeys and apes), as well as observations of their behavior under more or less controlled conditions, have demonstrated repeatedly that they are able to solve problems. A problem is encountered wherever a situation lacks a completion which is not at once obvious Accordingly, the following are examples of problem-solving through reasoning at different levels an ape fetching a box to reach a banana suspended from the ceiling, a child getting a stick with which to rake in a toy that is out of reach, a child fixing a brick under a wheelbarrow to tip it so that water may run out, a child judging which of two objects is smaller, a boy working out a mechanical puzzle, a person solving a riddle, conundrum, or joke, a pupil solving a problem in algebra, a scientist determining the atomic weight of a new element

Indeed, tests of mental ability present children of three and four years with non-verbal problems, while at five years and later, the child confronts problems involving the use of language, and problems which become progressively more

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[9] *Cf* John Dewey, *Democracy and Education,* The Macmillan Co , New York, 1916, pp 323 and 400, Boyd H Bode, *Fundamentals of Education,* The Macmillan Co , New York, 1921, pp 105 *ff* See also, in the present volume, Chapters XV and XVI in which the relation of "insight through visual survey" to thinking is illustrated and the development of reasoning ability described

complex at the later ages. In the Burt Reasoning Test, the following problem is placed at the seven-year level

> Tom runs faster than Jim, Jack runs slower than Jim Who is the slowest—Jim, Jack, or Tom?

At the ten-year level, we find the following

> There are four roads here I have come from the South and want to go to Melton The road to the right leads somewhere else, straight ahead the road leads only to a farm In which direction is Melton—North, South, East, or West?

In the 1937 edition of the Stanford Revision of the Binet-Simon Scale, reasoning at the ten-year level is tested by asking the child to detect absurdities in statements, such as the following·

> A man wished to dig a hole in which to bury some rubbish but could not decide what to do with the dirt from the hole A friend suggested that he dig a hole large enough to hold the dirt, too

The foregoing samples demonstrate that young children are capable of reasoning and thinking if the problems are within their range of experience and maturity.[10] At times it is also essential that the problem be functionally meaningful for the child For example, it was impossible for a boy in a remote Tennessee mountain hamlet even to start on the following problem. "If you had ten cents and bought four cents worth of candy, how much change would you get back?" He was inhibited in his thinking because, first, he rarely if ever had ten cents, and, second, if he had, it was inconceivable to him that he should spend four cents on candy Another child could not begin to calculate the cost

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[10] For numerous other instances, see, for example, Susan Isaacs, *Intellectual Growth of Young Children*, New York, Harcourt, Brace and Co , 1930, and J Piaget, *Judgment and Reasoning in the Child*, New York, Harcourt, Brace and Co , 1926

of a given number of gallons of cider, at a given price per gallon, because it was inconceivable to her that anyone would want to buy so much of the "stuff " In both of these instances superficial observation of the children's behavior would have led to the erroneous conclusion that they were incapable of thinking at the level of difficulty represented by these problems which, to the children, were functionally meaningless.

The ten-year-old child has already had numerous and varied experiences, he has reached a relatively advanced degree of mental maturity; he possesses a fairly large vocabulary, his capacity to remember is good, his sensory capacities are well developed, and his motor development is well advanced The ten-year-old, therefore, has the equipment for reasoning and thinking over a relatively wide area His reasoning and thinking, of course, should continue to develop, for other and more complex relationships are understood when the individual has become more highly matured and has had the advantage of favorable experiences (opportunity and encouragement to practice, competent teachers, and others). The understanding of more complex relationships involves not only experience with new *things,* but it involves also a *regrouping* of familiar things and experiences. This advance in reasoning produces different organizations with novel relationships. Mental development thus implies not alone the acquisition of additional knowledge and skills, but the understanding of new relationships between familiar things

The growth of reasoning and thinking through the extension of understanding of relationships takes place throughout childhood and adolescence, and often in adult life also In its fundamentals, education consists, among other things, of just such an extension and refinement of the understanding of relationships. The world, however, in which such growth occurs, remains broadly unchanged in its objective items; but

it becomes progressively new and richer for a person by virtue of his improvement in perception and understanding of relationships

The extended application of relationships and the grasping of new ones depend not only upon maturation but upon special preparation and familiarity with a subject This fact is shown in discovery and invention The person who is immersed in a certain field and whose thinking is saturated with its materials and concepts will be the more productive His exploration and familiarity prepare him for the next advance of insight It has been said that the accidents which lead to great discoveries occur only to those who deserve them In other words, a person must know enough and must be prepared to recognize the significance of an event when it occurs The history of science records a number of such accidents

It has been found that in their reasoning and thinking children go through more trials and make more errors than older persons, but that the *forms* of their reasoning and thinking are like those of adults. The bearing of the preceding paragraphs upon the role of "trial and error" in reasoning is obvious. In reasoning we may rely upon trial and we may expect errors, but the solution will be recognized only if an individual is looking for a solution, and if he is sufficiently matured and experienced to recognize it when it does appear. (See Chapter XIII)

If one denies that children are capable of reasoning and thinking, then education must take the form of mere routine assimilation of information and stereotyped habit formation If, however, we utilize children's capacities to reason and think, which they undoubtedly have, we will provide them with a variety of opportunities to come in contact with things and people, and to experience a variety of situations which will enable them to reason not only with numbers and academic information, but with situations and interpersonal

relationships providing them with a rational basis for the conduct of their lives Furthermore, a democratic society and a democratic process of education will provide these opportunities for all children alike in so far as they can benefit from them, regardless of class or caste, for only through such provision can an individual's capacity for rational and effective living be realized.

Mental Test Materials at Ten Years

Thus far, we have discussed individually a number of mental functions. Tests of intelligence, however, utilize these and other mental capacities in an effort to arrive at an index of general mental development and to plot its course The indexes of mental ability found with such tests are, in fact, the results of pooling or combining the individual's performance levels in the variety of mental functions measured.

At the ten-year level, on the Stanford-Binet Scale (Form M), for instance, the child, according to the test items, is expected to recall five facts from a short story read to him once, to be able to detect verbal absurdities (thinking) at an intermediate level of difficulty, to determine the number of cubes in a printed pattern, to define some abstract words (e g., pity, curiosity), to name from memory a dozen or more animals, and to repeat six digits heard only once. These test items, established through experimentation as appropriate for this age level, are samplings which, so to speak, probe the individual's mental functions and capacities, yielding an index which designates that person's intellectual status. It will be observed that the tasks to be performed on the test by the ten-year-old demand complex and varied abilities· rather wide memory span for factual and meaningful prose, and for disconnected, relatively meaningless materials (digits); [11]

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[11] The ten-year-old is expected to repeat 6 digits forward, the rather su perior adult is expected to repeat 8 digits forward

thinking, as revealed by his ability to "point out the intellectually irreconcilable elements of the situation presented"; [12] visual insight and reasoning as revealed by his ability to figure out the elements of a visual pattern, only part of which is visually present, the ability to discern the characteristics common to a number of specific things or experiences and to generalize (by defining abstract words); controlled association through a guiding idea (naming animals). The abilities demanded by these test items are dependent upon the mental maturation level of the general run of ten-year-old children, interacting with opportunities and experiences in environments common, in general outline, to children of this country. These standardized test items indicate the relatively high level of mental functioning which may be expected of the "average" child of this age. The tests show, too, that with adequate and appropriate experiences as a base, a very respectable level of reasoning and thinking may be expected of ten-year-olds, aided by their well but not yet fully developed capacity to recall.

The Curve of the Growth of Intelligence

By means of tests which combine the measurement of mental processes like those described above, the growth of "general intelligence" has been studied. The questions to be answered are these· What is the character of the curve of intellectual growth? How far, relatively, has the individual progressed in growth of intelligence at a given age? At what age is maximum intellectual capacity attained? For our present purposes we are concerned only with the first two of these, without going into technical detail. The third will be considered in the following chapter devoted to the period of adolescence.

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[12] For descriptions of these tests, see Lewis M. Terman and Maud A Merrill, *Measuring Intelligence*, Houghton Mifflin Co, Boston, 1937

At different times and by different investigators, three different types of growth curves have been indicated as the "true" curve of mental development. One, shown in Figure VI, is a straight line which, if correct, would mean that rate and annual increments of mental growth are constant from year to year This curve finds very little favor among psychologists The second, Figure VII, has three phases During the first, the *rate* of growth increases, that is, the curve is rising faster each year during this phase. Then in the second phase, though the curve still rises, the rate is slowing down Finally, in the third place, the curve virtually flattens out This curve has some support among psychologists, but it is not the one having widest acceptance The curve having greatest currency is shown in Figure VIII Here we find there is continuous rise, but the annual increments decrease That is, the rate of growth decreases from year to year, or, technically, the curve is negatively accelerated.
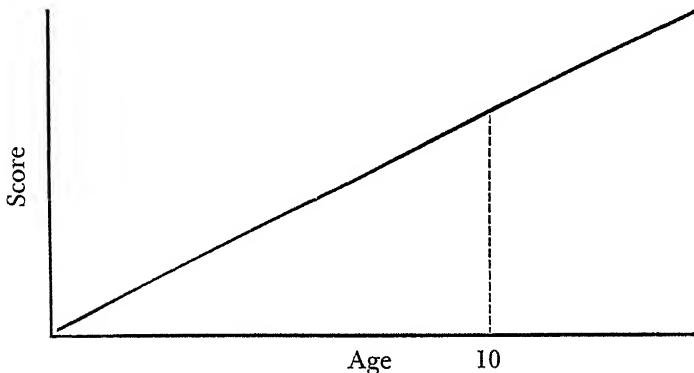
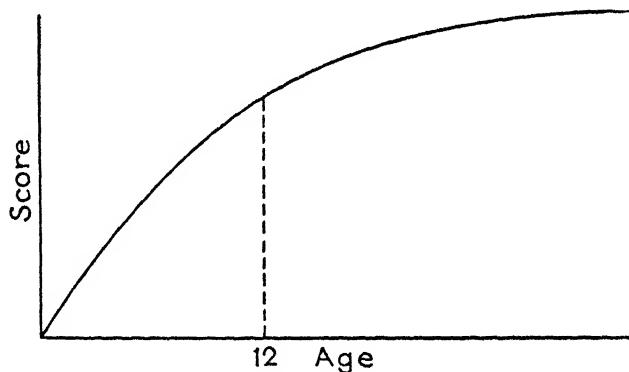
FIGURE VI —Hypothetical Growth "Curve" of Mental Ability Showing Equal Yearly Increments According to this "curve," mental growth continues at a steady and fixed rate from birth until maximum capacity is attained

Fortunately, for our present purposes we do not have to make a choice of a curve and defend it For, regardless of

the particular curve commending itself to the student, several facts are evident, so far as our ten-year-old is concerned That is, his mental development has progressed a major portion of the distance toward full capacity, his mental develop-
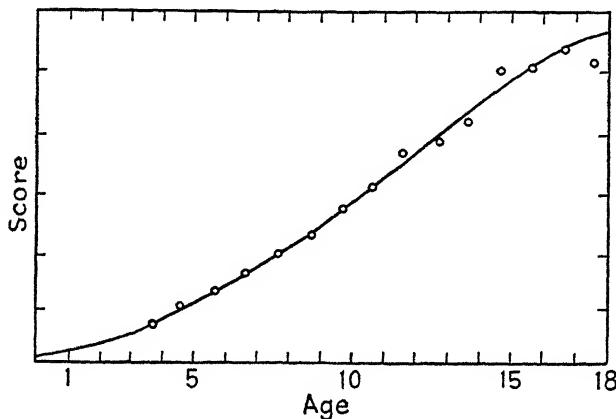
FIGURE VII —Hypothetical Growth Curve of Mental Ability Showing Three Phases Rapid Rise, Rapid but Slowing Down, Further Slowing Down and Flattening Out (From L L Thurstone and L Ackerson, *Journal of Educational Psychology*, vol 20, 1929, pp 569-583) According to this curve rate of growth is fairly slow until the age of about 2½ years It then increases in velocity until the age of about 13, after which velocity decreases

ment during his first decade of life has been such in quantity and quality as will never be equalled by his development within any subsequent decade.

Emotional Status

Needless to say, while the child's sensory, motor, and intellectual capacities are developing, his emotional behavior, generally, is also becoming more mature But the study and measurement of emotional development have been extremely difficult and have thus far yielded general rather than pre-

cise results. These general results, however, do furnish some insights which should be of significance in better understanding the behavior of individuals who have attained as high a level of development as has the ten-year-old.

FIGURE VIII —Hypothetical Growth Curve of Mental Ability Showing Decreasing Yearly Increments According to this curve, rate of mental growth is most rapid in the earliest years, though a very marked decrease in velocity does not occur until about age 12.

An outstanding difference between emotional expressions of young and older children is that the expressions of the former are less differentiated and less inhibited. The older child is more discerning and selective in his laughter, in his fears (though he may have more of them), in his joys, and in his angers. In respect to intensity of expression, younger children are more spontaneous and less restrained As a child is socialized and acquires the approved ways of behaving, he learns to restrain certain expressions, he learns what is taboo and what is tolerated. The neurophysiologist accounts for these changes by saying that the brain cortex (controlling the higher, more complex, and voluntary mental processes) assumes control of the thalamus (that part of the brain directing the spontaneous and relatively undifferentiated

emotional responses). This development implies that mature emotional behavior is not always a simple, immediate response to a simple stimulus, but rather, as Prescott has stated, ". . . that sometimes rather elaborate organizations of concepts pertaining to the stimulating situation and to the individual's own beliefs and desires may intervene, may have to be equated before the emotional innervations are set going from the thalamus." [13] That is to say, at the more mature level of development the intellectual processes intervene between the stimulating situation and the response containing the emotional ingredient. Thus in the development of relatively mature forms of emotional behavior we have the cooperation of the nervous system with social forces in which certain patterns of emotional behavior have been learned

From the foregoing view—which has wide acceptance among psychologists and educators—it becomes apparent that an individual's emotional behavior must be understood in terms of his experiences, knowledge, needs, desires, and purposes, for it is not possible to understand emotional behavior through an analysis of only the immediate situation Thus in trying to achieve an understanding of a child's emotional response to a given situation—tantrums, rebelliousness, stubbornness, expressions of pleasure and displeasure, extreme withdrawal, prejudices, jealousies, and others—it is essential to know what he has experienced and what he is striving for.

By the time a child has reached the age of ten, he will have had an assortment of experiences with people, animals, objects, and concepts, some of which will have an emotional content because of the nature of the particular experiences involved. These experiences, in turn, organize in the individual certain attitudes that may well establish the basis of emotional response—in various degrees pleasant and satisfy-

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[13] Daniel A Prescott, *Emotion and the Educative Process,* American Council on Education, Washington, D. C, 1938, p 36

ing if events conform to the direction of the attitudes, but unpleasant and annoying if they are in the opposite direction

Emotionalized attitudes may be formed in one or more of several ways through the fusion of experiences, through a dramatic, shocking, or injurious experience, and through the patterns of behavior furnished by parents, teachers, siblings, and playmates, adopted by the growing child as a matter of course It thus happens that a child's attitudes and emotional responses may really develop as his own, from his own perceptions, or ". . . even before he has an adequate background of experience, a child may form many intense and lasting attitudes toward races and professions, toward religion and marriage, toward foreigners and servants, and toward morality and sin " [14] And, similarly, toward many other objects, events, and people as well.

At the risk of tedious repetition, we reiterate that the ten-year-old is a highly socialized individual with a history of many and varied experiences. It is clear, therefore, that his emotionally colored attitudes are, during these ten years, in process of development. For the development and perpetuation, therefore, of a democratic society it is essential that a child be so reared in actual democratic living not only that he may intellectually grasp the concept of democracy—as previously discussed—but that he may also have toward it a positive (satisfying and pleasant) emotional attitude The problem that educators face is well stated in the following quotation [15]

> The development of attitudes, ideals, loyalties, and purposes, accomplished by assisting the individual with the organization of his experiences, has always been recognized as an ultimate aim of educators In former years, it was undertaken by the teaching of precepts and accomplished

[14] Gordon W Allport, "Attitudes," in *Handbook of Social Psychology,* Carl Murchison, editor, Clark Univ Press, Worcester, Mass , 1935, p 811
[15] Daniel A Prescott, *op cit ,* p 48

by the practice of social taboos and group pressure Now, the swift changes that are coursing through society and the discrediting of precept teaching has left school people talking vague generalities about character education and floundering badly in practice   Apparently, the Problems and Plans Committee of the American Council on Education was quite right in its suspicion that 'the stress laid on the attitude of neutral detachment, desirable in the scientific observer, has been unduly extended into other spheres of life' and that 'education should concern itself with the strength and direction of desires developed or inhibited by the educational process '

Important as emotions are in the development of attitudes, they are also of prime importance in the individual's whole physical condition in such a way as to influence his effectiveness and even general outlook upon life Psychologists and biologists hold that mild emotions are a tonic contributing to a zest for life. But this is not true of strong unpleasant emotions W B. Cannon [16] maintains that emotional derangement of bodily functions may be manifested in digestive disorders (gastro-intestinal system), heart ailments and circulatory difficulties (cardio-vascular system), and glandular dysfunctions (endocrine system) Dunbar,[17] another biologist, shows also that disorders affecting bones, skin, sense organs, the genito-urinary system, and the respiratory system may be produced by strong and persistent emotions It is hardly necessary, therefore, to point to the fact that schools must be concerned with children's emotional adjustments as well as with their intellectual development.

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[16] Walter B Cannon, *Bodily Changes in Pain, Hunger, Fear and Rage* (2d ed), D Appleton Co , New York, 1929, pp 241-267

[17] H Flanders Dunbar, *Emotions and Bodily Changes,* Columbia University Press, New York, 1935

Physical Development at the Age of Ten

The physical growth of children, especially as they approach the adolescent level, is of interest and significance not alone for its own sake, but also because a marked deviation in respect to a certain physical trait in a given child may and often does have severe emotional and social effects The child of ten who is under-size and cannot participate with his age and grade group, the child who is much over-weight and is the subject of jokes and taunting, the over-size child who becomes a bully in his group, the sexually precocious child who is rejected by other children and their parents—these are but a few of the instances of physical deviates whose exceptional development may give rise to educational and behavior "problems"

Although individual differences are widespread and important, we shall, however, be concerned here primarily with the general trend and level of development at ten years of age, for, after all, the degree and significance of an individual's deviation in respect to a given trait depend to a large extent upon the norm, or general level, of his group.

The average height of both ten-year-old boys and girls, as a single group, is about 54 inches, although boys, taken by themselves, are very slightly taller. At the age of ten, boys on the average have reached between 75 and 80 percent of their adult height, while girls in general have reached about 80 to 85 percent of adult height. Both boys and girls at this age, of course, are growing rather rapidly, but their rate of growth—percentage of increase within a given time—is slower at this stage than it will be several years later when they reach the beginning of the puberal phase The small percentage of girls and boys, however, who at age ten have already reached the beginning of their puberal phase, or will do so shortly, also show an increase in their rates of growth in height.

Although weight is more susceptible to factors producing

variations and fluctuations, the trend and general level are quite clear Weight in the case of both boys and girls at ten years is in general increasing at about the same rate it has been during the preceding four or five years But here again, as with height, those boys and girls who give evidence of sexual maturity, or its early approach, are also showing a greater rate of increase in weight The average found for boys at this age is about 70 pounds, or less than half (about 45 per cent) of their average adult weight, whereas for girls, though the average is about 70 pounds also, the percentage of adult weight is about 55

At the age of ten the child's head circumference has reached between 90 and 95 percent of adult size, chest girth is about 60 percent of adult size in girls and 55 percent in boys In weight, the brains of boys and girls at this age are, respectively, 95 and 98 percent of adult growth

These facts, showing different rates and levels of growth of the body parts at age ten, indicate that some body tissues are growing and will continue to grow more rapidly than others This is an instance of the differential rates of growth of the body parts, and it suggests that under conditions of deprivation, disease, or injury different parts of the body will fare unequally, since the more rapidly growing tissues require more and better nurture

While the foregoing facts are of interest in themselves, they are for our purposes particularly significant in showing how far the ten-year-old, the subject of this chapter, has progressed toward adulthood in the grosser and readily measurable aspects of physical development. Unlike the measured aspects of psychological development, there is not at this age a general slowing down in rate of physical development, as compared with the four or five preceding years In fact, it appears (though there is not complete agreement among investigators) that in height and weight both boys and girls speed up in rates of increase, beginning from a year to a year and a

half before the onset of puberty and continuing for about the same duration afterwards Naturally, since children reach the puberal phase at varying ages, they will show corresponding differences in ages at which their growth accelerates and decelerates. (See Chapter VII)

We must note, however, that individual differences in all physical traits are considerable At a given age, there are differences with respect to absolute height, weight, and the rest; as there are also with respect to the percentage of adult size attained at a given age There are differences, also, in the ages at which individuals reach the onset of puberty, and it has been found that in general those who mature earlier in this respect are as a group heavier during childhood, and they maintain that advantage in weight throughout the teens

In the matter of height, however, the results are somewhat different, namely, during childhood those who will reach puberty earlier are taller as a group, but there are no significant differences in heights of the different maturity groups of girls after fifteen years, nor in the groups of boys after seventeen. From the relationship existing between age of sexual maturity, and height and weight, it is apparent that any judgment regarding a child's being overweight or underweight must take into account the maturity factor

It is to be noted that although boys and girls at age ten are fairly well along toward adult height, excepting relatively few cases, they have not yet acquired the body proportions and contours, nor the secondary sex characteristics which are the distinguishing features of the adult male or female. Internal biological changes and the appearance of external, secondary sex characteristics are among the most important that occur in the child's physical development. And although the very large majority of individuals have not yet reached the beginning of the puberal cycle (during which sexual maturity and changes in bodily contours proceed), there are nevertheless some boys and girls whose puberal cycle begins before the age

of ten During this period, which lasts from four to seven years, growth of the skeleton and other body parts proceeds in several phases of acceleration and deceleration This indicates that the physiological developments producing sexual maturity also affect the growth of other tissues and structures Furthermore, it is also noted that those whose puberal cycle begins earlier in life grow at a more intense rate and for a shorter duration So far as body configuration is concerned, there is a tendency for boys especially in the latter part of the puberal cycle, to show marked growth in shoulder width, and among girls, marked growth in hip width. Generally, therefore, we may expect the puberty-precocious ten-year-olds to be those who are more rapidly approaching adult form.

In dealing with this complex matter of physical development it is not so much our purpose to present factual detail as it is to point out relative growth at the ten-year-stage, to call attention to individual differences and to possible behavior concomitants, and to indicate that most of these children are approaching the threshold of sexual maturity, while a few have already crossed it

A Summary Sketch

Viewing the ten-year-olds, then, in broad outline we see children who have made rapid and very significant progress, since the age of five, in respect to social, intellectual, and physical development. They fit quite well into the social pattern, they play cooperative games, have numerous interpersonal relationships, belong to one or more groups having a purpose, have achieved marked personal independence in their movements and activities, and are well along in the formation of their attitudes They are rather sensitive to the adult's world of interests and recreations. Qualities of leadership will have emerged in some children and will have been

recognized by the others Some children of ten (more for-
merly than now) are already wage earners and economic
assets in the support of their families A few are sexually
mature, others are close to it, and many others are within but
two or three years of the beginnings of the puberal cycle To
epitomize children's social development at this stage, we may
well say that they have achieved the status of relatively free,
differentiated units integrated with and acting in the "social
body."

While we emphasize the socialization of the individual by
means of his environment, we do not imply that all persons
are equally or similarly affected by environmental condi-
tions, nor that the same person is uniformly affected at all
times throughout his life Teachers and psychologists recog-
nize that many conditions and experiences fail to have any
noticeable effect upon certain individual children and adults
This fact has given rise to the term "permeability of person-
ality." Permeability in a given individual is dependent upon
his maturity level, his needs or motives, his goals, his emo-
tional state, in short upon what he is at a given time and the
direction in which he is moving, so to speak. Or to put the
matter differently, permeability depends upon how and
whether new situations and events might be incorporated
into a person's pattern of needs, experiences, and behavior.
For example: the privileged individual may be impermeable
to events and new notions that are not consonant with his
favored position; the emotionally blocked child may be im-
permeable to school materials, the underprivileged child to
precepts and aphorisms of equality, the delinquent to ethical
standards, the sexually immature to heterosexual social and
interpersonal relations, the gifted child to the interests and
games created by much less able children This concept of
permeability, however, does not gainsay the influence and
effectiveness of the socialization process through the environ-

ment, for it is only through the environment that the process can operate, in one way or another

At ten, children's language forms are nearly completely developed, although, of course, vocabulary continues to grow, and precision and nuances of expression may continue to improve Ten-year-olds have considerable reading skill, probably all they will need in common daily activity, though certainly not all they should have. They have at their command practically all of the simpler arithmetical processes necessary for daily living

The bodily skills of ten-year-olds are advanced They can, with training, of course, play a creditable game of baseball and tennis, they can swim, skate, ride a bicycle, and use many tools They have the sensory perception and the motor skill necessary for acceptable drawing, painting, and playing of musical instruments

In school, ordinary ten-year-olds are almost at the junior high school level where ideally they are given an opportunity to explore their capabilities, where instruction becomes more differentiated to meet individual needs, interests, and capacities, where they are introduced to skills and knowledge going well beyond the elementary school tool subjects [18] In fact, ten-year-olds, even though they are not actually in the junior high school, have the physical, and social capabilities for activities which will aid them in achieving relatively mature insights, significant interests, and for cultivating useful and lasting skills.

The child's education from the very beginning of his school career is, however, not only a matter of knowledge and skills. From birth, the child is being, in one way and another, inducted into the *mores* of his society. Prior to his school experiences the induction process is in the hands of family and other adults with whom he comes into association. But at

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[18] This does not imply that elementary schools do or should restrict themselves to teaching "tool subjects."

the age of five or six the child's socialization becomes also a matter for the specialized teacher in school to deal with Teachers at one level or another transmit some of the generally approved aspects of the social heritage, such as means of communication and computation, and standard accounts of history. They reinforce certain *mores* which are commonly accepted, such as respect for the property of others and monogamy. They contribute to the development of social attitudes which their particular society believes are useful in various life situations, among these attitudes being competition, cooperation, loyalty, aggressiveness, race prejudice, and others Teachers also aid the child to improve his social acceptability to the family, occupational groups, employers, avocational groups, and the opposite sex If this task is to be done effectively, it is essential that there be reciprocal cooperation between home, church, business and industry, and other social agencies.

Since our educators are preparing children to live in a democratic society, it is essential that there be reasonable emotional reinforcement of the democratic attitudes built through experience, and that intellectual examination of our *mores* be encouraged. It has already been indicated that by and large ten-year-old children have advanced far enough intellectually, socially, and emotionally to make the life period and school experiences between the ages of five and ten one of prime significance in their total and ultimate development At this age they are well on their way toward being able individuals and socialized members of the community.

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VII

THE SECOND DECADE OF LIFE

Significance of the Phase of Adolescence

THE SECOND decade of life is particularly noteworthy
for the fact that it includes that phase of development
known as adolescence And adolescence is defined biologi-
cally as the period in human life during which the repro-
ductive functions mature; that is, the period between the
onset of puberty and adulthood. Yet, although adolescence,
as thus defined, means growing up in respect to sexual func-
tions, this period in the life cycle of the individual in our
kind of society is of significance in human development and
behavior for other reasons as well. For in our society adoles-
cence is the life period during which the vast majority of boys
and girls end their formal schooling, try to make a permanent
or semi-permanent vocational selection and adjustment, and
attempt to establish themselves as independent and self-
reliant units in society, politically and socially as well as
economically. During the phase of adolescence, in our society,
boys and girls seek to achieve social status as mature and
desirable individuals, and in so doing attempt, among other
things, to free themselves from parental domination During
adolescence, religion for many assumes a larger and changing

role It is during this period, also, that the body as a whole develops the mature proportions and contours of the adult male or female, thereby producing within the individual changed attitudes toward or concepts of the self

Sexual maturation, however—the function with which we started our characterization of the phase of adolescence—also has its social significance, for notwithstanding the fact that the maturity level has been attained, our society, through its institutions and agents, imposes restraints and punishments until the socially approved age of marriage is reached And in the case of the male, the age of marriage is not only a matter of social approval but one also of economic competence. In short, the phase of adolescence, though its span is biologically defined, is in our society primarily one of social differentiation and adjustment, wherein sexual maturation assumes social significance from the cultural patterns within which we live. During adolescence secretions of the ductless glands (see below) produce certain bodily changes· the secondary sex characteristics, such as growth of hair, change of voice, change of body proportions, and others These characteristics contribute to the reciprocal interests of the sexes, but social control is imposed and sexual behavior is suppressed until marriage However necessary and desirable such control is, its arbitrary character must be recognized by all who offer guidance to adolescents In this respect, as in the case of other forms of behavior, the manifestations vary with different cultures, sex attitudes being derived from the social environment Notions of propriety, decency, and morality are created through education in the home, church, school and general community Among the Trobriand Islanders, for example, complete freedom of sexual activity, within limits of family taboos, is allowed to boys and girls from pubescence onward.[1] In their culture such a practice is feasible because

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[1] Bronislaw Malinowski, *The Sexual Life of Savages*, Horace Liveright, New York, 1929.

the responsibilities of parenthood are easily discharged under their simple economic system. Yet in other primitive groups the strictest prohibitions are imposed. In our own society, precocious parenthood is undesirable because often it would impose an impossible economic burden and would interfere with the parents' preparation for economic usefulness and independence. To this economic restriction have been added religious, moral, and legal restraints.

Because of these well established restraints, the usual practice is to reorient the individual, to set up other goals of behavior, to establish and foster new and realizable aims which may be achieved through acceptable modes of conduct. That is, motives other than sex are emphasized, such redirection of energy, interest, and activity being called *sublimation*. And the sex motive may itself be sublimated through dancing, sports, and heterosexual social activities. By means of the process of sublimation, it is possible to substitute a mode of behavior which offers a significant outlet to a craving for expression and activity.

In our discussion thus far we have advisedly repeated the phrase "in our society" for we wish to emphasize that the "problems" of adjustment which are found to prevail during adolescence are not inherent in the developing organism, but derive rather from the nature of the society in which the particular organism finds itself. It is for this reason that the period of adolescence is of significance and is often critical in the individual's growth; but it is not because "nature," by some freak, has selected these years for the appearance of tensions and behavior problems. In fact, studies of certain relatively simple primitive societies show that in them there is no crisis of adolescence; for as boys and girls mature, they proceed smoothly from one set of interests and activities to another. The conflicts, perplexities, and queries thought by some to be characteristic of the adolescent are not present. In our vastly more complex social structure, resting upon cen-

turies of growth, conditions are of necessity different; in the matter of adjustment the phase of adolescence becomes important and sometimes critical. For students of human development in our society, therefore, adolescence is a significant period to examine after having studied the developing individual at about the ten-year level

Criteria and Age-Span of the Puberal Cycle

To describe the characteristics of persons during adolescence, it is necessary, of course, to establish the point or age at which sexual maturity (puberty) appears and the age after which there is no further evidence of sexual development. In order to do this, it is necessary, naturally, to have criteria of maturity and of growth.

In the case of boys, the criterion of pubescence is, commonly, the appearance of pubic hair. Some investigators use also as a criterion the age at which the male genitals begin to show adult characteristics. Although changing of the voice and age of shaving are evidence of physiological maturation, and though they have psychological significance in the boy's concept of himself, they are too uncertain and unreliable to be used as criteria of the beginning of the period of adolescence.

The principal criterion of sexual maturity in the case of girls is more reliable and hence more satisfactory namely, the age at which the first menstruation occurs. There are, as with boys, also bodily changes, notably in breast development and body contours, about which more will be said later.

Just as certain bodily changes are evidence of physiological maturity and the beginning of adolescence, so likewise is the cessation of development of these body parts evidence of the end of the period and the attainment of adult status in respect to physiological development. Thus the end of the

period is attained when there is, in the male, no further development of the genitals, and in the female when there is no further development of feminine body characteristics [2]

Individuals differ, of course, with respect to their ages of onset and cessation With a majority of girls, onset of puberty occurs between the ages of twelve and fourteen, although in some cases puberal changes start at ten or even earlier, whereas there are still others whose changes do not occur until seventeen or eighteen. In a majority of boys puberal changes begin between the ages of thirteen and fifteen, the remaining individuals reaching this same status a year or more earlier, or a year or more later. In the case of neither boys nor girls do we have in mind those whose development may be regarded as pathologically accelerated or delayed A discussion, therefore, of the adolescent's physical characteristics must be taken as applying to individuals who have reached the phase of adolescence rather than to a fixed age group It is true, nevertheless, that onset and cessation in a large number of cases are more likely to be found within the range of certain ages rather than others Thus we may speak in somewhat general terms if, at the same time, we do not lose sight of the individual who deviates more or less from generalizations.

Growth of body size is marked by two major waves, or periods of rapid rate of growth. The first of these occurs in prenatal life and infancy, and the second is associated with puberty. The most rapid *rate* of growth in the life history takes place before birth. For example, during the fourth month of prenatal life the fetus doubles its length; during the sixth month of prenatal life it more than doubles its weight. In general, in the earlier months of prenatal life, rate of growth is more rapid than in the later months of the

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[2] In order to determine the onset and cessation ages, it is necessary to have photographs or examinations made at short intervals (perhaps three months) and over a long period of time

gestation period, although a rapid rate is maintained throughout the period before birth [3] During the first year of postnatal life, body size continues to increase rapidly, although at a diminishing rate For example, birth-weight, generally speaking, is tripled within the first twelve months, though
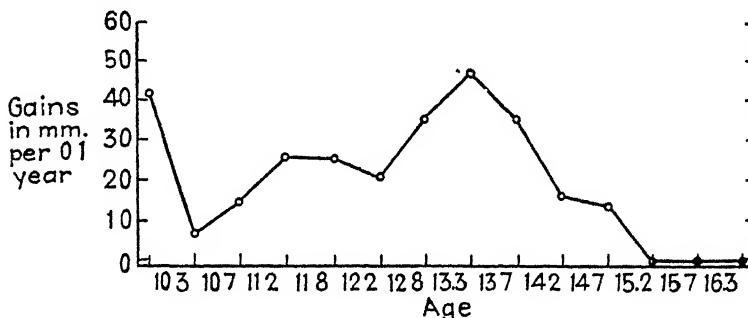
FIGURE IX —Pattern of Changes in Velocity of Growth During Puberal Cycle as Shown by Gain in Stem Length (sitting height) per 0 1 Year (Girl) (Curve supplied by Dr Herbert R Stolz, Research Associate, Institute of Child Welfare, University of California)

the rate is slower in the second six months than in the first six. Similarly the rate continues to decrease during the second year after birth. After the age of two years, and until a year or eighteen months before puberty, the rate of body growth remains *relatively* slow, except for a possible slight spurt at the age of six or seven, noted by some investigators. And as already stated in the preceding chapter, the prepuberal spurt in rate of body growth continues for about a year after the onset of puberty, the rate then tapering off until adult stature is attained. (See Figures IX and X.)

It has already been indicated that as body size increases, the contour and proportions of the body change until at maturity the individual has achieved adult form—again sig-

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[3] It has been estimated that if the human organism maintained the same *relative rate* of growth shown in very early fetal life, the individual of twenty years would reach a monstrous size which, stated moderately, would be of a bulk greater than that of the earth

nificant in the effect this has upon the person's own attitude toward the self and upon other persons' attitudes toward that individual. In the boy, in addition to change of voice, appearance of beard and pubic hair, and genital growth, the shoulders broaden, the chest broadens and deepens, other

FIGURE X —Pattern of Changes in Velocity of Growth during Puberal Cycle as Shown by Average Gain in Stem Length (sitting height) per o 1 Year (Boy). (Curve supplied by Dr Herbert R Stolz, Research Associate, Institute of Child Welfare, University of California)

body hair appears, the texture of skin changes, and the jaw becomes more prominent. In the girl, in addition to breast development and the obvious voice changes, there is usually an increase in size of the pelvis, and at the same time, adipose tissue is increased and distributed. These changes give the body the general adult female proportions and configuration. In both sexes, the face develops its adult features and contours.

Since all parts of the body do not grow at the same rate, certain anatomical parts may appear to be out of proportion at certain stages in the second decade of life, giving the individual an appearance of awkwardness, often proving a source of embarrassment, confusion, or even ridicule and anxiety about the self. Such parts, in particular, are the hands, feet, and nose.

Body changes, such as those mentioned above, which bring

individuals to adult size and proportions, or to an approximation thereof, obviously qualify them to wear adult clothing and adornments. With these changes in attire come changes in hairdress and assumption of other objects auxiliary to male or female adulthood. But in addition, with growth in height the individual's actual outlook upon the world changes; for the rapidly growing or fully grown adolescent no longer literally has to look up to adults. In fact, he may often literally look down upon them.[4] These changes in physical size and relationships cannot but affect the adolescent's attitudes toward himself and others. Conversely, it is true that the boy or girl of adolescent age who is markedly small or under-developed is prone to have feelings of inferiority concerning the self The same may be true of the boy or girl who is made especially conscious of disproportionate development producing awkwardness, or of the boy or girl who is retarded in the development of secondary sex traits and hence has little or no status in the adolescent group; or of the adolescent who for economic or other reasons is not able to dress consistently with his age, size, and group. Thus while body changes of the period of adolescence may enhance the individual's concept of the self, they may, under unfavorable conditions be a source of trial, suffering, and maladjustment.

Other Body Changes During Adolescence

Growth in height and weight, development of body contour, development of the genitals, appearance of body hair, and change of voice with growth of vocal cords are the readily observed aspects of physical growth and development But other organs and structures, not readily observed, are

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[4] A boy of fourteen, now several inches taller than his mother, greets her by placing his hand upon her shoulder and saying (with affection), "Hello, small fry."

also growing The heart, liver, lungs, and digestive system show marked growth during adolescence, as might be expected when body height and weight are showing conspicuous growth.

Unlike the rate of increase in body bulk, the brain and spinal cord approach adult size rather early in life At birth, the brain has already grown to one-fourth of its adult weight and volume, whereas the weight of the whole body at that time is only about five or six percent of adult bulk. At two years of age, the brain and spinal cord have grown to about three-fourths of their full size, and by six years they have attained nine-tenths of their full bulk Thereafter, obviously, the brain increases in weight and volume at a considerably reduced rate while other parts of the body proceed to catch up [5]

Now, although the brain tissues increase only ten percent in weight and volume after the age of six, and relatively very little after the beginning of puberty, those tissues continue to develop through specialization, differentiation, and organization. The fluid content of the brain tissues of children is considerably greater than in the case of adolescents and adults Hence, there may be little increase in weight and volume, but great increase in the number and size of the brain cells themselves Furthermore, although brain tissue may be at or near its adult bulk, development proceeds through continued organization of these tissues (cells and nerve tracts) into brain patterns. Also, the cortex develops differentially, the sequence being, the occipital, the parietal, and the frontal regions. For our purposes, it is important to note that the frontal regions are the last in the sequence, and they are the regions most significantly involved in the "higher" mental processes. It appears, therefore, that the sug-

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[5] The differences in rates and levels of growth of brain and spinal cord, on the one hand, and other parts of the body, on the other, provide a clear illustration of what is meant by relative or differential rates of tissue growth.

gestion is untenable that at six years of age ninety percent of the brain's weight and volume signifies that an individual's mature brain and mental development can thereafter be increased by only ten percent.

In other words, development does not cease with the cessation of increase in volume and weight, for there still go on for a long time many important internal changes in the nature and organization of the brain tissues [6] The inadequacy of brain size and weight as criteria of development is readily demonstrated by the fact that the sizes and weights of the brains of gifted persons show wide variation and that not infrequently the brain of a mentally defective person outweights that of a normal or superior individual Thus although *growth* in the bulk of brain and spinal cord tissues is rapidly approaching the maximum at age six, *development* is still far from the cessation point even at the beginning of pubescence.

Roles of the Endocrine Glands

Body growth and development are dependent, of course, upon the organism's internal and external conditions, the endocrine glands being of marked significance in respect to the former, for these glands of internal secretion are intimately related to physical growth and development. Regarding their influence upon the years of adolescence, the endocrine glands may be divided into two groups namely, those that undergo significant modifications during the period of pubescence and those that function in the second decade of life as they do in the first All glands, of course, have a bear-

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[6] In this connection it may be pointed out that the pyramidal cells continue to increase in size and to differentiate, probably into middle life, changes within the neuropile, surrounding all centers, go on constantly, dentrites may well continue to increase in number after the full size of the brain has been attained, thus making possible more numerous and more complex brain patterns

ing on development during adolescence, for, as biologists point out, normal, healthy development can occur only in a normal organism, and proper functioning of the glands of internal secretion is necessary to body normality. The glands that function in the second decade essentially as they do in the first are the thyroid, the parathyroids, the liver, and the Islands of Langerhans, they will, therefore, not be considered here, since they are not regarded as having particular significance for the period of life under discussion Other glands, however, appear to have an immediate bearing upon growth and development during adolescence. namely, the gonads, the pituitary, the suprarenals, and the pineal [7]

The *gonads,* it is well known, are predominant in puberal development, since it has been shown time and again that in their absence or under seriously inadequate functioning, normal, healthy development does not take place. The testes produce the masculinizing hormone in effective amounts beginning with puberty. In the absence of these hormones, the individual fails to develop adult male characteristics, whereas premature activity of the hormone results in precocious puberty, attended by early adult sex characteristics and to a lesser degree premature general bodily development. Although the psychological effects of loss of or serious deficiency in testicular hormones are not very well known, it is believed that one result is loss of or marked reduction in energy, with the consequent effects upon activity Certainly, the handicapped individual's concept of the self is markedly different from the male who is not thus affected. In the female, the ovaries play a corresponding role, giving rise to

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[7] See Roy G Hoskins, *The Tides of Life,* W W Norton & Co , New York, 1933, and H Flanders Dunbar, *Emotions and Bodily Changes,* Columbia University Piess, New York, 1938, Chapter 7. The first of these, in particular, will be useful to the student interested in the anatomy and physiology of the glands

We shall not discuss the thymus gland because so much uncertainty and disagreement surround the researches into its functions.

two hormones which stimulate genital, breast, and nipple development Early ovarian activity may cause precocious puberty, with its attendant physical and psychological characteristics, whereas, again, marked under-activity of the ovaries is accompanied by delayed puberty with partial or complete persistence of juvenile traits into adult life.

The *suprarenals* (also known as adrenals) are two in number, each one "perched like a cocked hat over the upper pole of each kidney, to which it is closely adapted."[8] Relatively, not very much is known for certain regarding the part played by these glands in growth and development, although, as Hoskins points out, there is enough evidence to demonstrate that they are capable of greatly modifying the picture For instance, in some way as yet not understood, cortin, secreted by the external part of the gland, appears to be associated with sexual development. Overactivity in girls gives rise to masculinity, whereas in boys overactivity often produces early evidence of puberty; while in adult women excessive cortin results in deepening of the voice and growth of hair on the face. Important, also, is the fact that in man the suprarenals are related to metabolism; for it appears that a large majority of persons with adrenal deficiency are underweight, have subnormal chest capacity, suffer from low blood pressure, and other physical handicaps resulting from metabolic difficulties. It is hardly necessary to labor the point that excessive or deficient activity of these glands may produce such anomalies in appearance, physical pattern, or energy as to affect an individual's status in the group, the utilization of his capacities, and his attitude toward himself.[9]

The *hypophysis*—pituitary gland—(situated almost exactly in the center of the head on the underside of the brain) is

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[8] Roy G Hoskins, *op cit*, p. 27

[9] Metabolic difficulties associated with adrenal deficiency suggest the possibility that mental functioning may also be affected through malnourishment of the pyramidal brain cells.

regarded as the most complex and most important of the endocrine system. It secrets a number of hormones of which the growth hormone of the anterior lobe is most noteworthy. For a deficiency thereof produces symmetrical dwarfism (a miniature adult), while an excess produces giantism. Other pituitary secretions influence the functioning of the gonads, preventing, delaying, or hurrying sexual maturity, as the case may be. Another pituitary hormone affects the functioning of the thyroid, while still others affect body processes such as carbohydrate and fat metabolism A combination of pituitary deficiencies is said to produce, more especially in boys, small bone development, marked obesity, delayed sexual maturity, and reduced physical energy. Although the pituitary is a gland of many functions and is called the "master gland," it is as yet only imperfectly understood. Yet the part it plays in growth and development is well enough known to demonstrate that significant dysfunctioning produces anomalies of physique, with possible behavior deviations in the affected person, and consequent adjustment difficulties.

The *pineal gland,* attached to the brain close to the pituitary, is not nearly so well understood, functionally, as some other glands of the endocrine system. "The presumptive evidence is not insignificant that the pineal gland plays a role in somatic, mental, and genital development. Whether this role is one of acceleration or checking is curiously uncertain. . . . The evidence as a whole regarding pineal physiology is chiefly notable for its inconsistency and inconclusiveness, but such weight as it does have suggests that the gland may produce a hormone which serves to stimulate development and to accentuate the changes characteristic of puberty." [10] Thus although the exact manner in which the pineal works is still

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[10] Kenneth D. Blackfan (Chairman), *Growth and Development of the Child,* Part II, Anatomy and Physiology, The Century Co., New York, 1933, pp 546-547

uncertain, the general trend of evidence indicates its significance in development during the period of adolescence

It is clear from even our brief comments on the several glands presented that they all share, in one way or another, in puberal development. An appreciation of the functions of these glands helps to clarify the physical changes taking place during adolescence Their functions help us also to understand the complex and general nature of growth during that period, and they indicate a possible source of anomalous growth and behavior. Knowledge of glandular function likewise removes heterosexual development and interests from the realm of abstraction and speculation. Yet it is not to be assumed that the many phenomena of adolescent development and behavior are to be understood and solved by an appeal to the findings of endocrinology While it is true that excessive or deficient secretions of the ovaries, testes, adrenals, pituitary, thyroid, or other glands disturb the process of development, there is no warrant for ascribing to the ductless glands the many variations in human growth, behavior, and personality, as some enthusiasts, notably medical men, do It is now accepted that the chemistry of the body—due to glandular activity—plays a part in the general determination of *temperament,* and that serious glandular dysfunctions are accompanied by characteristic body traits But it has not been demonstrated that there is a definite or typical relationship between chemical states and personality in the great mass of people regarded as normal. In fact, a survey of publications dealing with endocrine functions in relation to personality shows that normally endocrine glands serve to maintain equilibrium of the body functions and that in themselves they do not produce significant differences in personality [11] One rea-

[11] William Freeman, "Personality and the Endocrines A Study Based upon 1400 Quantitative Necropsies," *Annals of Internal Medicine,* vol 9, 1935, pp 444-450 Also Dwight J Ingle, "Endocrine Function and Personality," *Psychological Review,* vol 42, 1935, pp 466-479

son why so much importance has been ascribed to glands in personality development is that traits of temperament (e.g , irritability, depression, apathy, etc) have erroneously been made synonymous with personality which, however, is more comprehensive but *includes* temperament. The personality is vastly more comprehensive and complex than temperament, since the former designates all those traits—physical, emotional, intellectual, social, and what not—that are integrated to give an individual his uniqueness.

To sum up, then, we may say that the endocrine glands very significantly affect growth and the life processes, with consequent secondary traits having an important role in the formation of personality. It is obvious, of course, that glandular dysfunctions which cause irritability, sluggishness, hyper-emotionalism, depression, marked abnormality in size, sexual over- or underdevelopment, or anomalous secondary sex traits will have their effects upon an individual's personality. On the other hand, studies of relationships between body chemistry and personality have not demonstrated a stable or definite correlation between biochemical phenomena and personality traits in the great mass of persons whose development and behavior are within the normal range.

Nutrition during Adolescence

It is a truism, of course, to say that growth and development depend in part upon nutrition, for common observation has taught everyone that underfed or malnourished children suffer in their growth. Yet these common observations concern the readily apparent aspects of growth—height and weight Conditions of nutrition are complex and widespread within the organism in their effects. For optimum physical development the body needs amino acids as a source of glucose, inorganic elements (sodium, potassium, calcium, magnesium, chlorine, iodine, phosphorus, sulphur, iron,

copper), the various vitamins, and a fatty acid Unless disease intervenes, optimum development results when an adequate diet is consumed during the period of growth and under hygienic conditions. On the other hand, malnutrition is the cause of some cases of stunted growth, anemia, soft and flabby musculature without excessive fat, or certain types of obesity. The results of specific vitamin deficiency are spectacular and serious Depending upon the nature of the deficiency, there may be damage to the sexual structure and function, tooth deterioration, disease of the nervous tissue (and possible impairment of learning ability), damage to the capillaries, interference with metabolism of calcium and phosphorus, damage to skin and digestive system It is common knowledge, also, that chronic iodine starvation results in simple goitre. These conditions are mentioned not for the purpose of parading a gallery of morbidity, but simply to emphasize the importance of nutrition and healthy body functioning during adolescence which is a period of rapid growth and accelerated glandular activity; for the importance of optimum nutrition during adolescence, and indeed throughout the period of growth from the moment of conception, is being more and more widely recognized among educators and sociologists who are realizing that too often they are confronted by the end results of conditions which have been in operation for years through ignorance or faulty handling.

Available knowledge of physical development, glandular activity, and nutritional needs, discussed in this chapter, is, of course, scientifically interesting and valuable to all persons concerned with the growth and development of children and adolescents To educators, such information helps to make clear the fact that the teacher is dealing not alone with a pupil's intelligence or aptitudes, but that he, the teacher, is inescapably confronted with a total organism all of whose behavior, attitudes, learning, and interests are parts of that individual's pattern, or "picture." Furthermore, if our avail-

able knowledge of growth and development is to be democratically functional, one of the obvious implications is that the necessary and optimum conditions of prenatal care and of postnatal feeding and hygiene throughout the period of growth and development must be universal, for, lacking such universality, the notion of equality of opportunity for development in a democracy is something of a fiction The fiction of equality of opportunity for wholesome development is made emphatic by the fact that a *moderately* good diet for a family of four, prior to the rise in prices in 1940 and subsequently, cost about $650 a year, while a *liberal* diet, excluding luxuries, for the same family cost about $850 Obviously, it is the liberal diet that growing children and adolescents require. It should be noted also that these low figures rest on the assumption that purchases can be made judiciously and under favorable conditions, that household management is skillful, that the household manager has a knowledge of dietetics, and that culinary skills and art are well advanced [12] Yet, in 1936 in the United States two-fifths of the families and single individuals had annual incomes of less than $550 Without equality of developmental opportunity, no one can say how far, in a given individual, the potentialities for development have been limited. To sharecroppers, to impoverished slum dwellers, to those deprived of physical care, to the frustrated and the educationally impoverished, democracy may well appear to be a fiction, or at best but a legend.

Some Psychological Implications of Traits of Adolescence

The facts and factors of physical development are not only matters of biochemical and social significance. They are, as

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[12] These costs of the moderate and liberal diets were calculated prior to the United States defense program of 1940 and subsequently, that is, prior to the war profiteering in food and the creation of artificial shortages through holding huge quantities of essential commodities in storage for higher prices Now, 1942, the costs of adequate diets must be revised upward considerably

already suggested, of psychological significance in the development of the adolescent's personality, for although the individual is at all times a biological organism, the problems and situations confronting him during a given period derive their meaning and significance from the psychological effects produced in the individual as a result of his interaction with his environment. The individual's gross size and body proportions are, of course, noted by his associates Often epithets or nicknames, good and bad, are based upon body size and form, with the result that the individual's own view of himself is thereby affected Indeed, his place and rank in his group are affected or determined by the attitude of his associates as reflected in the nickname It is inevitable, therefore, that each adolescent should evaluate himself and his growth relative to the characteristics of his group and that his regard of himself as normal or abnormal, and, consequently, his emotional adjustment, should be influenced by that evaluation It is obvious, for instance, that a boy or girl retarded in physical development will find it difficult or impossible to share in the interests and social activities of his group who have attained a markedly higher level of maturity. The retarded individual, seeking to justify himself in his own eyes, may then defend himself by withdrawing, more or less, from the group, simulating indifference, or he may compensate by overemphasizing a limited or restricted activity. Or, seeking to justify himself in the eyes of his associates, he may attempt to compensate by overaggressiveness.

The adolescent, more than in earlier life, is emerging as a differentiated social being, and he seeks a place for himself in the company of his peers. In so doing, he discovers that many of the factors contributing to his status are quite beyond his control: his rate of maturing, body proportions, secondary sex traits, and economic forces; his capacity for intellectual development and his capacity for the development of skills. If, nevertheless, his development and sur-

rounding conditions are favorable, he acquires feelings of confidence and security, he feels that he belongs and has a role to play. If, on the other hand, conditions are unfavorable and development is inferior, for whatever reason, the individual functions poorly, he may develop anxieties and tensions resulting in maladjustment. A fundamental human need is that of acceptance and approbation, bringing comradeship, belonging, understanding, and sympathy. Such acceptance gives an individual status in the social group, whether through school achievement, athletics, dress, or other forms which our society has established as important or dominant values

The attitudes which, through childhood and adolescence, the individual develops regarding the self, other persons, and symbols of values may be, depending upon their nature, facilitating or disturbing influences long after the period of growth is over Therefore, the period of adolescence during which development of essential traits progresses rather rapidly and during which one acquires new values and modifies others is significant not only in the behavior of the second decade of life, its significance may well extend into middle life or later. Thus for an adult to understand himself or the personalities of those whom he would guide during or after adolescence, it is necessary to know his own and others' physical and mental growth histories in their several aspects: their tempos, peculiarities, social and economic setting Such knowledge obviously puts the emphasis upon the individual; and rightly so. While chronological norms are useful in comparing an individual with his group for the purpose of determining his relative status and evaluating his degree of deviation from the more usual state of events, the ultimate unit of education and concern to the educational psychologist is the *individual* Growth and development, therefore, should be judged by the patterns and changes shown by the individual. his rates of growth, interrelationships between

different aspects, symmetry or asymmetry, deviation from typical sexual forms The study of these and the conditions under which they appear will emphasize the essential unity of the psychological, physical, and social organism. To understand an individual, all measurements and evaluations must be interrelated and fused into a meaningful whole. Otherwise child and adolescent development and behavior, often setting the course into middle or late life, become mere abstractions.

Social Forces in Adolescent Development

Our discussion thus far in this chapter has been devoted primarily to some of the specific aspects of and factors in physical development, and secondarily to their social and psychological implications. We may now turn briefly to a consideration of some of the major social agencies or forces under which the individual develops.

The nature and significance of cultural forces have already been indicated in the preceding chapter Here, it is necessary only to reiterate that every society has its particular sets of values, approved behaviors, and restraints. In our society these sets vary in some respects for boys and girls whose problems of adjustment are, therefore, somewhat different, for cultural influences upon boys and girls are such as to prepare each sex to assume its masculine or feminine role in the home, occupations, group behavior, interests, and attire For, it will be recalled, although the sexes are becoming socially differentiated at about the age of ten, the process of differentiation and the assumption of specialized social roles is accelerated and of greater significance during adolescence than before. Social sex differentiation is still the case in spite of the radically changed status of women in our society in the last forty years. Yet, even though each sex has its peculiar specific problems of development and adjust-

ment, there are several broad realms of influence which affect and are relevant to the development of both sexes during the period of adolescence

The Home

The first of these influences, of course, is the home Needless to say, the child's first social contacts and experiences—except under special circumstances—are in the home From its parents and other members of the family the child learns its first patterns of human behavior. It is while the child is growing up in the family and absorbing its ways of behaving that he experiences, under favorable conditions, his first feelings of emotional and physical security, of belonging, and of being wanted. Under unfavorable conditions, however, the child may feel rejected and unwanted. Between the former, the optimal emotional situation within the family, and the latter, an extremely unfortunate emotional environment, there are various degrees of children's feelings of being accepted or rejected. For our purposes, the significance of these feelings lies in the fact that the early emotional experiences within the family affect the individual's adolescent life. The adolescent often vividly recalls his early fears in the home, especially those of punishment which have left an emotional tone that strongly persists. It is suggested by some psychologists that adolescents' so-called "need to revolt" against parents is in fact an attempt to free themselves from immature, unpleasant, and inferior conceptions of the self which have been engendered by and are part of their experiences with their parents. Such unhealthy conceptions of the self interfere with the individual's development into an emotionally mature and independent being, so that to achieve the desired status of maturity and independence the adolescent feels forced to reject the parent, more or less, in order to acquire an adult role. This view of adolescent "re-

volt" has much to commend it, for studies of children with behavior problems and of delinquent adolescents repeatedly find emotional disturbances deriving from feelings of rejection in the family, disharmonies and severe discipline in the home, sibling rivalry and jealousy,[13] though there are, of course, other causes too

These undesirable emotional states and conceptions of the self, however, are not necessary accompaniments of adolescence if during childhood and later there is mutual understanding and regard, and if the child or adolescent is treated like an individual meriting regard, in fact, treated like one's peer. Adolescents, in particular, would like the companionship and friendship of parents, they want to be treated like adults. Adolescents have some of the desires, many of the interests, and later the appearance of adults; but they do not have the gratifications, the independence, or the developed skills and knowledge of older persons Herein they seek the guidance of parents and teachers Lacking such, they seek mature understanding elsewhere It follows, then, that most of the problems of adolescence, with their effects on the personality development of the individual, are not inevitable, are not intrinsic and inescapable, if parents, teachers, employers, and other adults in positions of authority and responsibility have insight into the needs and capacities of adolescents

Religious Beliefs

Not infrequently, boys and girls in the second decade of life find it necessary, sometimes compelling, to adjust or reconcile their religious beliefs with new and more extended experiences; while others find it necessary to acquire or develop those beliefs in order to achieve a greater degree of security, or to reconcile and synthesize apparently conflicting

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[13] See, for example, William Healy and Augusta F. Bronner, *New Light on Delinquency and Its Treatment,* Yale University Press, New Haven, 1936

and seemingly meaningless life phenomena. These adolescents, it seems, are in need of the support provided by a set of values so that the realities of induction into adulthood are more easily faced. It is psychologically unfortunate, however, if this adolescent need of security fosters a self-indulgent mysticism, sometimes associated with certain religious cults, as an escape from reality, for such an escape is not conducive to adequate adjustment.

Some psychologists maintain that adolescents need a faith, or faiths, that they require certain larger values which transcend themselves, whether this be faith in the state, in the church, or in "Science." In any case, the institution becomes invested with symbolism, mysticism, and paraphernalia, and supernatural forces are personified, from all of which these persons derive emotional satisfaction. But in an economy of plenty, of tremendous technological advancement, of improved medicine and public hygiene, it should not be necessary for youth to seek emotional satisfaction through the projection of a perfected life in the hereafter.

Other boys and girls are members of a religious denomination because it is part of their family life. For another group, religious participation provides a medium for social and civic activities. This last group reflect a wholesome change in Western religions, namely, a tendency to concern themselves with those forms of material amelioration which, if consummated, would create a better adjustment of the individual.

So far as adolescents, at least, are concerned, if the church, school, or other social institutions are to inculcate in them certain religious, social, and economic faiths with their associated precepts and tenets, it is certainly essential that these tenets and precepts be manifested in the life of the community and nation in which the individual will have to function. Too often there exists a great gap or even a flagrant contradiction between the faith taught in school and church

and the standards and practices of life in the community In the adolescent and the adult one of the results of such a contradiction is an attitude of cynicism, of disillusionment, or a sense of futility Thus, for wholesome personality development, faiths, whether in the church or in the economically and politically democratic state, must find their realization in actual social living Otherwise, faiths become possible sources of frustration And in the institutions that teach them, these faiths may become mere verbal exercises.

Vocational Selection and Needs

The selection of and outlook in a vocation are among the most important concerns in the life of the adolescent There are several reasons for this. Work and economic independence, in most strata of our society, give the individual status. Eventual acceptance into adult groups depends in part upon one's having a job. The prospects of marriage and having one's own household depend, of course, upon occupational and economic competence in most instances. Participation in productive work, wherein the person feels he has a significant role to play and is able to share in the satisfactions of the finished product, provides an opportunity for a feeling of belonging, as well as for a feeling of achievement and of purposefulness in activity.

Contemporary youth, however, faces more than the usual uncertainties, difficulties, and anxieties associated with achieving occupational competence and economic independence In the first place, the ratio of youth to adults is changing in the United States. Whereas in 1850 there were about 9 *adults* (over 20 years of age) to every 10 *youths,* in 1935 there were 21 *adults* to every 10 *youths* The immediate result of such a change is seriously restricted occupational opportunity for youths, attended by increased insecurity and anxiety. Add to this the fact of recurrent and prolonged

economic depressions, and the unwholesome psychological effect becomes still more pronounced For example, in 1930 there were eleven million gainfully employed youth (ages 16-24), while in 1935 that number had been reduced to less than eight million This reduction occurred in the face of a five per cent increase in the population of this age group in the intervening years. Even more impressive in this connection, is the estimate that during the depression about forty per cent of the youth who were employable and desirous of obtaining work still did not find any Such a state of affairs, quite aside from its economic implications, signifies a tremendous loss of human resources and is bound to influence adversely the conceptions which these unemployed youth have of themselves and their society In a socio-economic setting of wide unemployment among youth, with the associated psychological repercussions, there is danger of a state of readiness for autocratic and dictatorial direction which will remove responsibility and worry from these harassed adolescents

It is estimated that about 1,750,000 youths enter the national "labor market" annually They attempt to find satisfaction and adjustment in the 18,000 different kinds of occupations in this country Guidance, skill, and information, obviously, are essential. Yet a large majority of youth have unrealistic or even romantic prior notions of occupations, find their work unacceptable, and resent the existing occupational stratification. The result in some instances is the development of fantasies and daydreams about desired but unattainable vocations As illustrations of unrealism, we may cite the fact that of the 1933 high school graduates in Milwaukee, 46 percent indicated they wished to enter the professions, whereas in 1930 only 6 7 percent of the gainfully employed were in the professions. Though the exact percentages may vary from one community to another throughout the nation, the secondary school graduates of Milwaukee

are not unique in their occupational preferences and illu-
sions The Lynds reported that in "Middletown," even
during the "prosperous twenties," the opportunities for pro-
motion to supervisory positions, which developed in the
course of a year among a body of 4,440 industrial workers,
were six [14] The situation in Rochester, New York, seems to
be even more unpromising, for in a report completed there
a few years ago it is stated that, "Those who were able to
find themselves work of a professional or supervisory, or
managerial nature were in most instances less than one per-
cent of all who became employed In other words, about one
student in a hundred who leaves high school for any reason
eventually becomes a 'brain worker' or a 'boss.' " [15] When
one contrasts the occupational preferences of youth, however
unrealistic, with the jobs they actually hold, if any, it is not
surprising to find that they are dissatisfied, and many, no
doubt, feel deeply frustrated In Denver, in 1935, of one
thousand youths (16-24) who were in full-time employment,
71 percent stated that their work was not the kind they
desired. In Houston, Texas, although dissatisfaction was not
so widespread, there were still 42 percent of three thousand
youth (12-22) who stated that they were in jobs they would
not have considered, had they been able to get other work
At the moment we are concerned only with the effects of this
state of affairs upon unsatisfactorily employed youths and
upon the adolescents who face similar prospects. In the case
of the former, as already indicated, feelings of unworthi-
ness, frustration, and disillusionment are common, in the
case of the latter, increased feelings of anxiety and insecurity.

The solution for this unwholesome condition is by no
means easy, or entirely apparent But at least certain remedies

[14] Robert S and Helen M Lynd, *Middletown, A Study in Contemporary
American Culture,* Harcourt, Brace and Co , New York, 1929, pp 65-66
[15] Homer P Rainey, *How Fare American Youth?,* D Appleton-Century
Co , New York, 1937, p 28

that commend themselves have been suggested. On the economic side, working conditions will have to be improved, wages increased, and security of employment assured. These three improvements will compensate in part for some of the satisfactions needed but not found in the work itself, especially of the hum-drum kind. But this is not enough

Society is stratified along occupational lines; perhaps not so rigidly as in other countries, but stratified none the less. It is only to be expected, therefore, that adolescents will think in terms of and aspire to the status-giving occupations, such as the higher-types of "white-collar" positions which exercise a disproportionate attraction for youth, even though these positions may and often do require less skill and have less social value than many of the skilled trades which, however, are not so high in the prestige scale Again, among girls, housework as an occupation is held in low esteem, in spite of widely distributed colleges of home economics and a very marked increase in home-making courses in high schools. Yet, this need not be the prevailing attitude In a democracy, cooking, domestic service, waiting on table, and similar occupations, need not be and should not be an unworthy occupation or a sign of menial status There has to be a changed attitude on the part of boys and girls with respect to these occupations. But, much more important, this change in attitude on their part will not come about unless there is a radical change in attitude on the part of those who employ or are served by cooks, waiters and waitresses, and household employees The dignity, the esthetic and expert possibilities of household management and other work of similar status have hardly been tapped A fundamental question, however, is this In a democratic society, what should be the relationship between the server and the served, between the employer and employee? The answer to this question, in democratic terms, will contribute much toward the attitudes engendered by the occupations less favored at present After

all, musicians and composers were once, and not so long ago, in the category of "servants", surgeons, with all their present-day drama and mysteriousness, have sprung from the humble barber and blood-letter, and even great authors had to depend upon the beneficences of their arrogant patrons

The public schools, through their teachers, guidance counselors, and administrators, have a major responsibility in facilitating the occupational adjustment of adolescents and youths It should be one function of the secondary school to assist pupils in arriving at a sound evaluation of themselves as potential workers and to give them, at the same time, insight into the kind of occupational, industrial, and economic society in which they will have to adjust themselves. But this is only part of the function and responsibility of educators. They have an equally important obligation to give industry, business, and the community an understanding of the psychological nature and needs of youth, and of adults as well. For the problem of developing occupational competence and well-being, and economic independence, is not merely a matter of "fitting the individual to the job." Developing a society which is consonant with human needs is basic.

The Secondary School

The role of the secondary school is that of "meeting the needs" of its pupils, practically all of whom are adolescents These needs encompass more than particular academic abilities, and more than the occupational needs mentioned above, important though these certainly are The schools, as Keliher says, must ". . . take in account those imperatives which so directly influence the lives of all of us " [16] The schools thus have a responsibility in trying to overcome un-

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[10] Alice V Keliher, "Special Problems of Adolescents," in *Mental Hygiene in Modern Education* (P A Witty and C E Skinner, editors) Farrar and Rinehart, Inc , New York, 1939, p 260

dernourishment and malnutrition, by no means uncommon
among elementary and high school pupils Associated with
this should be instruction in the care of the self which, com-
bined with optimal nutrition, helps the individual achieve
a feeling of physical adequacy Sexual instruction, the respon-
sibility of the secondary school and of the parents, presents
a problem of forming habits and attitudes conducive to hygi-
enic living, both mental and physical To achieve this end,
control and direction must be based upon intelligent choice,
arrived at through instruction by teachers and parents. The
medium for cultivating intelligent choice is a wholesome
and scientific atmosphere surrounding sexual behavior as a
major human motive having its normal, healthful, and es-
thetic aspects The schools ought, also, to provide social
activities and outlets for boys and girls to furnish the ex-
periences and interpersonal relationships necessary for ad-
justment In so doing, the schools will contribute to the
development of desirable social attitudes in their pupils: in
respect to so-called racial and minority groups, in respect to
such superficial social matters as family position, income, and
occupation, in respect to the capabilities of one's fellows; in
general, in respect to status-giving factors. By playing the
role here suggested, the schools do not abandon their tradi-
tional concern for the intellectual development of their
pupils But they do extend their concern to other aspects of
the human organism, and by recognizing and dealing with
the individual's social, physical, and emotional needs, they
are in a position to make the pupils' intellectual development
more nearly optimal and effective For it is a psychological
truism today that the individual is a unified whole, and that
his intellect does not develop or function in a vacuum.

By the time an adolescent has reached the age of fifteen
or sixteen, he has attained a very high degree of his ultimate
mental capacity. In fact, some psychologists maintain that
adult capacity *has* been attained at that age, and that from

then on any apparent advance is the result of accumulated experience, information, and consequent improved judgment However, even though the age at which one's adult mental capacity is reached remains debatable among psychologists, there can be no doubt concerning the relatively high degree of mental development of the adolescent, and indeed we have seen there is reason to believe that even the youngster of ten years is much more mature than he is given credit for Furthermore, regardless of the technical aspects of the question of mental development—and they are important—it is clear, also, that concerning the adolescent's mental development we should distinguish between mental *growth* and mental *development,* and in so doing, we do well to quote Prescott's very clear statement [17]

> . . mental growth means an increase in the elementary capacities for the different types of learning and for understanding the inter-relations existing in reality between the facts experienced Mental development means the actual learning of truth about existent reality, the actual increase in comprehension of the inter-relations existing between the facts experienced, and the actual emergence of behavior patterns appropriate for dealing with these realities . mental development depends upon the nature and scope of the experiences through which the individual passes

Obviously, then, there are still many large opportunities for the mental development of the adolescent, the youth, and even the adult. The schools, therefore, have the responsibility of providing those experiences which will be conducive to the maximum development of each individual's effective intelligence This outcome can be achieved through giving adolescents experiences in and pertinent facts about the physical, social, vocational, political, esthetic, and economic

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[17] Daniel A Prescott, "Youth as Developing Organisms," Chapter 3 in *38th Yearbook,* National Society for the Study of Education, Part II, 1939, pp 34-35

aspects of life. Such experiences and information will not only promote mental development, they will help provide the adolescent and youth with some of the equipment necessary to attain insights into and security in the democratic society of which they are integral members.

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VIII

CHILD AND YOUTH RELATIONS
WITH ADULTS

With Special Reference to Parents and Teachers

I N ADDITION to supplying their children, more or less, with the elements of a physical environment—food, shelter, clothing, opportunities for activity—and in varying degrees with the elements of intellectual nurture, parents surround their children with a psychological environment of more subtle but no less effective and significant forces These forces, for better or worse, are among the most important elements upon which children's personalities nurture and develop We are referring, of course, to parental attitudes and values in a wide variety of situations which guide them in the treatment and consequent development of their children, and which, naturally, contribute to or even determine children's behavior The study of parent-child relations and resultant child behavior, however, is a complex, subtle, and often elusive one. It is not susceptible of rigid objective investigation by means of precise measurement and refined statistical analysis. Variables are not readily defined or isolated. Most of the available information and conceptual

materials are based upon the analysis and interpretation of case study data. These, nevertheless, are of great significance, for they reveal personality resultants of environmental forces, interpersonal relations, trends, and principles of behavior that are clear and useful.

Teacher-pupil relations are equally subtle, and also often elusive. They are, likewise, of prime importance in the child's development, even though teacher-pupil relations have their beginnings some years later than those of parent and child and are usually confined to a much smaller fraction of the child's day. The fact is, however, that ordinarily the personal environments provided by parents and teachers and the consequent interpersonal relations are among the most significant elements in the development of the child's personality and behavior.

Effectiveness of Adult Attitudes

Students of child development and behavior take the position that the effects of parental attitudes toward the child are felt from early infancy, and that the most important single source of the child's feelings about himself is his parents' attitudes toward him. It appears that even young infants experience pleasure and satisfaction, or the converse, from their tactile perceptions when being handled, they also feel and apprehend facial expressions, tones of voice, and adult attitudes, in general, toward them. Observations of infants' behavior indicate that they apparently associate parental acceptance or rejection, welcome or neglect, love or resentment with their own selves. For example, babies who are scolded and roughly handled for having wet themselves will, when wet, cry apparently in anticipation of parental disfavor which manifests itself in scolding and rough handling. Again, many parents whether as a result of their own misapprehension or of misguided instruction from the

pediatrician, refuse to hold the infant while it is being bottle-fed, whereas, because the infant is completely helpless and dependent, there is good reason to believe that such attention from the parent, under the satisfying conditions of feeding, is among the first and most important sources of the child's early feelings of acceptance and security. Similarly, favorable or unfavorable attitudes and emotional relations between parent and the very young child are built up in connection with toilet habits (regularization very often being attempted too early and too vigorously), sleep, motor activity, cleanliness, and in general toward companionship with other members of the family, including siblings. It is evident that most of the very young child's activities and interpersonal relations are developed around his basic physiological motives or needs, particularly feeding and toilet training which are prime factors in the child's early experiences These physiological needs have their psychological aspects no less than do other needs and activities having less apparent physiological correlates—such as the need to explore one's environment and learn (called "curiosity"), and the need of recognition and acceptance by one's fellows.

As the child passes from infancy into early childhood, opportunities for good or poor adjustment and for the influence of parental attitudes increase. There are new foods to be eaten and new techniques of feeding to be learned, attended by parental anxieties, not infrequently fostered by the attending physician, if, for example, the child does not consume an arbitrarily prescribed amount, or if he does not at once take to a new food "on schedule." Attitudes toward food, developed in these early years, may affect a child's health and emotional development; for he learns to like or dislike not only specific foods but the whole feeding process and everything associated with it through his experiences with foods and feeding. In fact, some maintain that a large majority of food allergies have emotional causes.

As the child grows older and as his means and range of locomotion increase, he often has to contend with parental attitudes toward "cleanliness" and "dirtiness." An exaggerated sense of cleanliness on the part of parents may produce in the child restraints and conflicts, especially when complicated by clothes that may not be got dirty. Children, on the contrary, are curious about their environments, the grimy as well as the clean, and they play vigorously in both. Nor is this interest in the grimy confined to children, for adults seem to relish working in gardens, on motors, with paints, or in just "going primitive."

Also, as a child grows older, opportunities for and interest in activity and the environment increase, but at the same time, so do opportunities for interfering with adult possessions, wishes, standards, convenience, and peace. Such interferences and friction may be dealt with by means of undesirable and unwise arbitrary and autocratic restrictions and disciplines, or they may be handled in a friendly manner, sympathetic and rational so far as possible, in which parents participate in the children's interests, becoming thereby companions and sources of security and affection, rather than mere symbols of arbitrary authority. An atmosphere of democratic sharing of activity and responsibility in the home—and in the school as well—would obviate or solve many problems of behavior, at the same time promoting learning and wholesome emotional development. This fact was demonstrated in the series of experiments by Professor Kurt Lewin and his students, discussed in some detail in Chapter XIX. Although the experiments were performed with school groups, the essential conclusions that emerged are no less applicable to home situations involving child-adult relations. In the democratically organized group, as compared with the autocratic, the children were more friendly and cooperative; their comments were more objective; they participated in their project more actively, as shown

by their more numerous constructive suggestions, they were more appreciative of one another, as revealed by their mutual praise, each child treated the adult leader and was, in turn, treated by him as a peer. In the autocratic group there was, by contrast, much more tension, some children were extremely subdued and repressed, while others were over-aggressive and defiant, between these youngsters there were numerous expressions of competition, negative criticism, unfriendliness, resentment, and hostility. These findings are more than suggestive, they help define the form to be sought in the development of parent-child and teacher-pupil relations

Parental Rejection and Over-Protection

Parent-child relations have been most widely studied and discussed in terms of rejection and over-protection (or over-acceptance) There are, of course, all intermediate degrees between these extreme positions. The first extreme (rejection) may be characterized by parents' hypercritical attitudes, disregard or neglect, numerous threats to the child's physical security and well-being, actual desertion, or failure to provide financial support (assuming, of course, that parents have the means) [1] At the other extreme (over-acceptance or over-protection) parental attitudes may be characterized by excessive contact of and association with the mother (sleeping together, undue caressing, keeping the child always within sight), prolongation of infant care (providing for his physical needs long after the child can take care of himself), prevention of the development of independent behavior (defending and fighting for the child, too close and extensive supervision of activities), deficiency or excess of maternal control (on the one hand, over-indulgence and revolving the household

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[1] See, for example, Marion J Fitz-Simons, *Some Parent-Child Relationships as Shown in Clinical Case Studies*, Contributions to Education, no 643, Teachers College, Columbia University, 1935

around the child, on the other hand, insistence upon complete obedience, resulting often in intensification of infantile traits) [2]

It is clear that such disparate and extreme forms of treatment will have very appreciable effects upon the development of a child's personality and behavior. It is not possible, however, to predict exactly what the consequences of extreme treatment will be, for a child's development and behavior depend also upon other though often less powerful influences. Nor is it to be assumed that *every* child who has been the victim of parental rejection or over-protection is doomed to a lifetime of maladjustment, since a variety of forms of adjustment, as well as maladjustment, are possible. Many students of human behavior believe, however, that the effects of these extreme and unfortunate parental attitudes are not completely eliminated at any time in the life span. It is a fact, nevertheless, that among the cases coming to behavior and child guidance clinics, parental attitudes of rejection or over-protection frequently appear as important causative factors in the problems to be dealt with.

Parental neglect or rejection at times may even be the primary cause of a child's delinquent behavior, in the more extreme cases. In socially less severe instances, parental rejection may create in the child anxieties, fears, hatreds, and unhappiness. Rejection may also produce an over-aggressiveness which often persists for a large part or all of an individual's lifetime, giving rise not infrequently to an overweening ambition. Such ambition, continued into adulthood, in the more extreme cases saddles an unfortunate industry, community, or nation with "leaders" who are motivated by vindictiveness, which they attempt to rationalize in a variety of ways.

Parental over-protection, on the other hand, if it is prima-

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[2] See David M Levy, "Maternal Overprotection and Rejection," *Archives of Neurology and Psychiatry*, 1931, vol 25, pp 886-889

rily and successfully *dominating* in character, often results in the child's being excessively submissive, that is, extremely obedient, dependent upon others, and completely accepting authority This sort of child is regarded by too many adults as the "good" child, for he does not disturb them, he does not interfere with their established ways of doing things, they can exercise their authority upon him without meeting opposition It sometimes happens, however, and paradoxically, that a child who has had too much care and protection from parents will later reject and rebel against authority. This paradoxical result is very probably due to the kinds of situations in which the child received the excessive care and protection and to the effect such treatment had upon that child's behavior and status in his relationships with other members within his own family and with groups outside his family with which he has become identified. In other words, the individual's *eventual* reaction to childhood over-protection and submissiveness will depend upon what kinds of situations he must live in and contend with at a later time, upon his later purposes and goals of activity, and upon the manner in which his earlier over-protection and submissiveness influence the effectiveness of later adjustment.

Parental over-protection, however, may also take the form of over-indulgence, when, as already stated, the household revolves about the child and there is absence of authority In such a case, the child may develop into a commanding, bullying, lime-light seeking, authority-rejecting individual Obviously, traits such as these do not qualify a person for well-adjusted association and living with his fellow men, even if it is true that such persons sometimes become "leaders" in their communities or nations. But their so-called leadership is not motivated by an interest in social well-being; nor is it necessarily buttressed by superior abilities. It is a "leadership" motivated by a powerful desire for self-aggrandizement.

Causes of Rejection and Over-Protection

Inasmuch as parental attitudes so profoundly affect a child's personality development, it is important to know, if possible, what the factors are that cause these attitudes. Among the more immediate causes of over-protection, particularly in the case of mothers, are the following earlier frustration in having children, hazards of childhood, especially if the child has any physical handicaps, sexual incompatibility with one's spouse; lack of social contacts and lack of other interests, thwarted ambitions and consequent "living out" of the parents' lives in their children. Among the less immediate causes of over-protection, two stand out first, the parent's unhappy childhood and emotional impoverishment in early life, and second, unusually early assumption of a responsible role and continuance of this role into marriage The presence of both of these factors in a parent's early life, which occurs not infrequently, greatly enhances the probabilities of the appearance of an over-protective attitude in parenthood.

Among the causes of rejection by parents, again particularly by the mother, as revealed in case studies, are the following emotional immaturity, dependence; insecurity; marital disharmony because of sexual maladjustment or for other reasons, unwelcome responsibilities and deprivations associated with raising children When factors such as these are the causal ones in cases of rejection, the children become the objects of parental dissatisfaction and sometimes threats of displacing the parent in the family constellation.

Operative in parental over-protection or rejection are several other factors which are still more remote and less readily perceived than those mentioned above. One of these is *transference* to one's child of a feeling of hostility or protection, as the case may be, which the parent held and fostered toward another person. That other person might have been the

parent's own parent, or the parent's brother or sister, or some other relative The transference of feeling and attitude *may be* entirely unconscious Yet the child, in such an instance, may revive and perpetuate in the parent his (or her) former feelings, because that child recreates the former situation in which those feelings were engendered

A second factor among those less readily perceived is the *projection* by the parent upon the child of certain feelings and attitudes which the parent harbors toward himself, or herself In severe instances of guilt feelings about one's self, created in a variety of ways (e g., strong attachment of the parent to his own parent of the opposite sex, sense of shame, exaggerated conscience, scruples, and inhibitions) a parent might project this self-depreciation upon the child Projection, however, may occur in many forms, one of the most common of which, and educationally very significant, is the projection of parental ambitions and goals upon a child. In this case unfulfilled parental ambition and unattained parental goals are put upon the child; it is a form of vicarious self-fulfillment which is not in the parent's consciousness, or otherwise stated, the parent unconsciously lays upon the child an emotional "must." Parental ambitions for their children, however, are not always undesirable, nor unwholesome, if the ambition and goals are within reach of the child's capabilities, and if through wise guidance the child comes to accept them as his own But when actual projection fosters in the parents attitudes of too great intensity, severity, and strictness, when it leads them to set up goals that are too high, and to dictate the child's course of activity, the results can be extremely unwholesome. Another important form is the projection of a parent's own unresolved fears and insecurities upon the child, due to the parent's own unfortunate childhood experiences In short, it appears that many of these instances of projection derive from the parent's own

trauma and unsatisfied needs of childhood and adolescence, the effects extending into parenthood

An Alternative to Rejection and Over-Protection

It might appear from the foregoing discussion of parental attitudes that there are no desirable and well-adjusted parents That is certainly not the case There are many parents who have spent their childhood and adolescence under optimal or near-optimal conditions, and who, therefore, are able to provide their own children with initial environmental advantages There are still other parents whose childhood and adolescence were less than optimal, but who have sought and achieved insight into the nature and causes of their own feelings and attitudes, and who have thereby been enabled to provide more desirable interpersonal environmental conditions for their children. It has been our primary purpose, in presenting these factors in parent-child relations, to indicate that parents' own histories and experiences profoundly affect their feelings and attitudes toward their children, and, consequently, affect their children's development. These children, in turn, become parents themselves, their feelings and attitudes too are rooted in *their* own histories and experiences, thus their own offsprings' development, in turn again, is influenced by the manner in which they, the newer generation of parents, were developed. And so the cycle of events goes Thus do certain attitudes and ways of behaving become established and perpetuated, coming in time to be erroneously regarded as "natural" and "inherited." [3]

It is not possible to prescribe a precise formula, the use of which by parents will insure the child's optimal personality development. By reason of genic constitution and develop-

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[3] A good summary of points of view regarding parent-child relationships will be found in Percival M Symonds, *The Psychology of Parent and Child Relationships,* D Appleton-Century Co , New York, 1939

mental history, no two children are identical in all respects, situations in which children live and develop are varied and dynamic. A few general principles on the positive side can, however, be stated, indicating that rejection and over-protection are, of course, not the only alternatives It has already been pointed out elsewhere that children need to have the feeling of security which can be provided by parents, a feeling that they belong, that they count, that they "can do " A child requires the help of someone to assist him in organizing his increasingly widening variety of experiences, and it is the parents, more than anyone else, who are in a position to provide a child with that essential from month to month, and year to year Part of this feeling of organization and security can come from parental supervision and guidance which, if wisely administered, enables the child later to use his own freedom with more confidence and to determine his own course of behavior more adequately Parental supervision and guidance, obviously, imply the necessity of certain restraints, but these the child should know are neither capricious nor autocratic. Under adult supervision and guidance, a child is enabled to make choices of activity which are consonant with his capabilities and *prerogatives*. Through such a procedure and such choices, the child learns some of the essentials of behavior by means of immediate experience, he learns attitudes toward authority; and he learns the meaning of cooperative behavior. These early feelings and attitudes, developed in the home in the early years of the child's life, will significantly affect his attitude toward his parents during adolescence, and even in adulthood. Indeed, the forms of behavior, developed in the home, will affect the child's relationships with his playmates, teachers, and society in general. The desirable alternative to the extremes of the rejecting or over-protecting parent, then, is the parent who is the child's affectionate companion, sharing his interests, providing supervision and guidance on a basis as nearly dem-

ocratic as the child's development permits. We have already indicated that the very young child apprehends and feels much more of his environment, that he is much more of a human individual than adults credit him with being, also that the five- and six-year-olds are much more mature persons in all respects than most adults realize, and that the ten-year-old is indeed a relatively mature social and intellectual individual These facts of development and maturity give support to the suggested procedure in parent-child relations [4]

Parents' Influence on Attitudes in General

Thus far our discussion of child-parent relations has been concerned with their emotional adjustment to each other, giving rise to certain reciprocal feelings and attitudes, as a result of many concrete situations and interpersonal experiences. These feelings and attitudes are among the most significant effects produced on the child's personality by parents In addition to these interpersonal feelings and attitudes, however, parents contribute heavily to the development in the child of *specific* feelings and attitudes toward specific things and persons not intimately or directly associated with their interpersonal relations We are referring here to the beliefs, values, superstitions, prejudices, inhibitions, fears, goals, and the like which children develop by virtue of the fact that ordinarily they do grow up largely within the family and under its influence. The human organism, during the developmental period, is very susceptible to environmental forces, most of which in these years are in the home, and later to a lesser degree, in the school, the child rapidly learns habits, attitudes, and ways of behaving In a complex society

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[4] A helpful, non-technical discussion of parent-child relations will be found in Sidonie M Gruenberg, *We, The Parents,* Harper & Bros , New York, 1939, also in Katherine W Taylor, *Do Adolescents Need Parents?,* D Appleton-Century Co , New York, 1938

like our own, the child learns these very largely, at first, from parents and other members of the family. Though not all individuals are cast in a single mold, the child's conformity with adult notions of being kind, aggressive, loyal to this or that, cooperative, religious, well mannered, reserved, and so forth, is regarded by adults as fundamental and constantly affects their efforts to develop the youngster's personality Parents, teachers, and other adults bring to the development of children's personalities (hence, to future adults) their own attitudes, ideals, concepts, beliefs, information and ignorance —in short, their own traits—derived from their own training and experience in the traditions, customs, and attitudes of the various groups and environments in which they themselves developed Parental influences, then, are relevant not only to mutual emotional and personal relationships with their offspring, their influences may extend into practically every area of activity in which the individual engages, even in adulthood.

To achieve the desirable kinds of adult-child relationships suggested by recent psychological investigations and here indicated will require extensive education of parents, an education which, however, while equipping them with insight into child development and behavior, will not fill them with anxieties and fears It will require also the education of others who in professional roles deal with children notably teachers, pediatricians, and the clergy.

Teachers' Roles

It is taken for granted that one responsibility and task of the teacher is to help children develop certain habits and skills and to acquire certain information deemed necessary or desirable. In addition, however, it is now recognized that the teacher has a further obligation; that is, to help the whole child develop. The term "whole child" is a popular

one at present, but it is more than just a term It emphasizes the fact that teachers, whether they will or not, are constantly confronted by an individual whose physical, sensory, emotional, and intellectual traits have been and are interacting within an environment and are mutually interdependent in a unified organism, making him the kind of person he is, presenting the kinds of capabilities and problems the teacher must deal with In fostering the development of the whole child, teachers have a role similar to that of parents

In order that men and women should be the kind of teachers who foster the child's wholesome, well-rounded development, it is desirable that they, the teachers, should have had broad, varied, and first hand backgrounds of experience in childhood and adolescence, leading to their own wholesome development during those periods These experiences should include, among other things, participation in decisions relating to their own welfare and in activities stimulating them to act for the common good, if they are to assist their own pupils in such activities, essential in democratic living. Such backgrounds in childhood and adolescence are desirable, indeed essential, to give teachers a fuller understanding of children, greater stability in meeting problems of teaching, and in furnishing resources for providing children with desirable experiences. But more; teachers during their own developmental process, at some stage, should learn at first hand the varied conditions under which children live, play, are nurtured, and develop attitudes toward social institutions and people. A direct knowledge of social, economic, and developmental realities should be part of the equipment of a teacher who is to be sensitive to the needs and developmental aspects of the children they guide. In other words, through their own fruitful experiences and through an understanding of themselves, teachers are much better able to understand children and adolescents and thus

to provide conditions more conducive to optimal develop-
ment. In fact, it is very doubtful whether teachers whose
experiences have been severely limited and whose activities
have been seriously circumscribed are competent to guide
the living experiences of children and adolescents. For, ef-
fective living during childhood and throughout the period
of one's educational preparation is likely to carry over into
the work of teachers in school and community. Ineffective,
inadequate, and circumscribed living will likewise carry
over.

Teachers' Needs and Values

Teachers' personalities, like those of any other adults, have
their roots in and have received their nurture during child-
hood and adolescence. But their lives and experiences in
adulthood are also strong influences in determining whether
or not they are to be well-adjusted persons It is not enough
that teachers shall have had satisfactory patterns of life prior
to entering their profession, those patterns must continue,
teachers must be able to secure reasonable satisfactions for
their needs. These needs and satisfactions comprise those
which are physical, psycho-biological, social, intellectual, and
esthetic (though it should be observed, of course, that these
are not mutually exclusive and distinct), the experiences be-
ing such as will provide the individual with desirable and
necessary emotional satisfactions.

It seems to be true, unfortunately, that too many teachers
have developed a concept and ideal of the self in which
denial and abstinence are primary elements, in which nor-
mal desires and satisfactions are denied. Equally unfortunate
is the fact that too many communities expect or even de-
mand that their teachers continue this course of denial and
abstinence. Yet, as already indicated, it has been shown that
to be a generally effective and attractive teacher to the pu-
pils,. it is necessary that a person shall have had and shall

continue to have a satisfactory and reasonably rich pattern of life. It has been found, as was to be expected, that such effective teachers are the ones whose companionship, advice, and counsel are sought by pupils Persons who deny the essential importance of life-patterns providing the kinds of experiences and satisfactions emphasized by more recent studies of human needs usually do not make effective or desirable teachers, for, among other things, they have denied the basic importance of esthetic and emotional experience and expression, whereas children and adolescents are seriously concerned with all their needs, and particularly with their attendant feelings and emotions.

Teachers' feelings and attitudes can affect their pupils adversely or beneficially, a number of studies having shown that there may be unwholesome consequences as a result of working with and under teachers whose lives exhibit strong evidence of frustration and distortion. This situation is significant, educationally, because the teacher's own judgment of pupil-behavior and the teacher's aims or goals for the pupils' development will depend upon his own values. Too often these values are not consonant with the best interests of the pupils. It has been found, for example, that so-called behavior problems among children are much more prevalent in classrooms of emotionally unstable teachers than in the classes of better adjusted teachers. In this connection, it has been shown also that the teacher is prone to manifest concern, anxiety, or annoyance with the behavior of a child who, by his failure to conform, interferes with the routine and standards of the classroom Routine and standards, in turn, are the product of the teachers', supervisors', and administrators' own attitudes and values, and to a degree those of society in general. Yet, on the other hand, most teachers, like parents, are not disturbed by the excessively withdrawn, timid, or docile child, who, though he conforms and gives no

trouble, manifests traits that may well be symptomatic of maladjustment.

Here again, as in the case of parents, what the adult considers good or bad, right or wrong, desirable or undesirable is in part a product of his own life and his consequent values, as well as of those values and standards with which society expects conformity Clearly, then, and quite aside from society's standards and values, pupils are subject to and affected by the experiences and histories of their teachers whose feelings, attitudes, and responses are conditional upon their own past relations and upon the manner in which past situations were resolved. A teacher who, for example, has not solved his or her own conflicts and problems in a given area of living cannot be of much help to pupils having conflicts in the same area.

What we have thus far stated may be epitomized by saying that the resourceful, cheerful, and attractive teacher is one who is not only intellectually mature but emotionally mature as well The emotionally mature person is one who, as already implied, has had a reasonably adequate pattern of life, who has met and resolved his life's situations and problems with insight, who does not transfer his own difficulties and deficiencies to others but who, on the contrary, is capable of sharing in the interests of others and of giving sympathy and understanding in his relationships. The presence of such a teacher means that the pupils have a chance to develop in a classroom atmosphere in which security, mutual respect, and opportunity for achievement are pervasive. Such a teacher gives, among other things, direction and guidance, rather than being a censor who dominates a submissive group of pupils [5]

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[5] In this connection, the student might refer again to the summary of Anderson's experiments in Chapter V of this book

Elements Operative in Pupil-Teacher Relations

While it is not the purpose of this discussion to provide a guide for the handling of pupils, it is essential, nevertheless, to indicate specifically some of the more important elements operative in pupil-teacher relations, beyond the generalizations already given First, the teacher should be aware of each child as an individual In order to achieve this awareness, he, or she, must know not only the child's intellectual capacity and school marks, but also that child's physical characteristics, and physical peculiarities if any, the child's home background, parent- and sibling-relations, and general environmental conditions Though full familiarity with a child's history is often difficult and not infrequently impossible, it is none the less true that without such familiarity, children having adjustment difficulties cannot be fully understood For instance, without his being aware of it, a teacher is sometimes made a parent- or sibling-substitute by a pupil who transfers to that teacher the feelings held toward and behavior used with the family member Generally, the attitudes and activities of these children, considered "bad" more often than not, are misunderstood, while, as a matter of fact, they are among those most in need of understanding and friendly treatment. Teachers and other adults who have important roles in the development of children must penetrate beyond the superficial appearances and activities of children. It is a task of these adults to relate an individual's isolated behaviors and traits to one another and into a meaningful whole. (See Chapter IX) To do this constructively and with an adequate degree of objectivity, the teacher—and others—must have achieved that adjustment and emotional maturity already indicated.

Aggressive behavior of pupils is a frequent source of a teacher's vexation, annoyance, and irritation, resulting often in a feeling of distaste or dislike for the pupils concerned. In-

stead of giving such a negative reaction, however, the teacher should know that a child's aggressive behavior is an expression of an unsatisfied motive or need and that the child is seeking satisfaction of that motive through some form of compensatory activity The causes of aggressiveness are to be found in schoolroom incidents, as well as in the home and general community These causes are, basically, affronts to the child's fundamental motives, or needs, such as the need of acceptance and approbation, and of achievement The aggressive child, therefore, requires understanding and friendship, rather than rejection which aggravates the condition and helps amplify the undesirable forms of behavior. In cases such as these under discussion, "discipline" and punishment do not solve the problem, they merely instill fears and suppress the undesirable behavior, but do not eliminate it. These behaviors are manifestations of disturbance or of an unsatisfied motive, or need. As such, they are not to be treated simply by a scheme of rewards and punishments which fail to recognize the child's basic motives and his possibilities for development

It is essential that teachers understand and appreciate the environmental differences and contrasts of the homes from which pupils come A given child's home, family patterns of behavior, and family values often are markedly different from those of his schoolmates, and differences among pupils, in general, exist in various degrees. There may be differences in parental speech, morals, manners, food, religion, occupation, and other aspects, differences which come to be exaggerated in the child's view Such exaggeration, especially if the home and parental traits adversely influence the child's school adjustment, may create tensions and attitudes of hostility between child and parents In a situation such as this, it is the teacher's obligation to understand and be sympathetic with the dilemna in which the child finds himself, to help develop ways of meeting the situation, principally by

giving the child a role to play in the different world found in the school, thereby reducing or eliminating hostility toward the home, through activities to promote among all pupils tolerance, understanding, and cooperation. Here again, Lewin's experiments on democratic organization and those of Anderson on cooperation as contrasted with dominance are relevant. (See Chapters V and XIX)

Economic insecurity and inadequacy in the home play a more significant role in the child's degree of stability and quality of adjustment than is generally recognized Teachers in W P.A nursery schools, for example, have found two general patterns of personality appearing in young children as a result of economic insecurity and attendant lack of parental attention and affection.[6] One group are the shy, withdrawn, anxious, "shut in" (introverted) children, who find it hard to establish adequate associations with other children and who are likely to have difficulties of adjustment as members of a group. The second group are those who become hyperactive and aggressive, responding to their deprivations and frustrations by compulsive activities designed to "get theirs" and "get even " It is not improbable that this is the group from which some of the racketeers are recruited, and from which emerge some of the "self-made" men who become autocrats and slave-drivers when they attain positions of authority But not all these physically and emotionally impoverished children fall readily into one of the two categories. Some are very dependent upon adults, others apparently repress their spontaneity, while still others suffer from sapping of physical strength, sometimes attended by symptoms of physical disorders, such as gastric disturbances, allergies, and organic defects. It appears, then, that in a group suffering under economic insecurity and inadequacy, emotional and economic insecurity reinforce each other. While these ob-

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[6] Lois B Murphy, "The Contribution of Development to Morale The Nursery Years," *Progressive Education,* 1941, vol 18, pp 243-246

servations were made of young children of nursery school age, the significance of the observations is not limited to them alone, for it is to be recalled that an individual's personality has its roots in childhood, that the physical and mental health of adults are related to childhood experiences.

Necessary Teacher Preparation

This discussion might seem to concern itself only with the extreme and more or less morbid kinds of development and behavior But, like so many aspects of human development, studies of the extreme and pathological instruct us regarding the "normal" and healthy. So, the serious behavior and developmental problems of children are not to be confused or identified with the rather widespread transient and moderate disturbances most often found among children; such as certain fears, feelings of insecurity, temper outbursts, tics, and so on, which are overcome with relative ease if the child has intelligent guidance.

In order that teachers may deal more adequately with the "whole child" they require biological and psychological knowledge which will facilitate their recognition of deviations from the desirable norms of health and development, deviations having significance for either physical or psychological development, or both For example, knowledge of growing children's nutritional needs and the effects of malnourishment, common organic defects (such as glandular dysfunction, heart defects, tuberculosis), sensory deficiencies, physical anomalies, the role of activity, different rates of growth among different individuals, and variations of growth rates within an individual, together with knowledge of the possible bearing of these upon development and behavior will facilitate a sympathetic understanding of a child whose relationships with the school and teachers show evidence of poor adjustment. If this knowledge is accompanied by an

appreciation of the possible role of the child's genic background (inheritance) and his physical and cultural environments, understanding is further increased Such knowledge, furthermore, will facilitate also the provision of an educational program best designed for the child concerned.

The teacher's ability to understand and to contribute to children's development is further enhanced through familiarity not only with the growing organism's physical needs, but also with his psychogenic motives and the manner in which cultural patterns—of large groups and sub-groups— may adversely or favorably affect them. Familiarity with these, supported by the child's history, will enable the teacher better to understand, for example, conflicts between the child and parents or teachers, conflicts between the child and society (including delinquency), individual differences in the acceptance of and conformity with social control, individual differences in attitudes and performance In order to achieve the necessary insights into these conditions and situations, teachers will recognize—as already indicated in other connections—the roles of such factors as the general cultural pattern, caste and class memberships (encompassing parental occupation, economic status, color, religion, national origins); sex membership, intellectual status, the need for achievement, for affection, and social acceptance. Such insights provide the basis for understanding and dealing with instances of projection, compensation, aggressiveness, and other symptoms of emotional difficulties. (See Chapter XVIII.)

We have for the most part presented the motives and needs of the individual child in his relations with parents and teachers Indeed, it is of paramount importance that the individual child be the ultimate unit of concern to them. At the same time, however, teachers and parents have to be especially aware of the fact that their relations with a child are affected by that child's group memberships at a given time; groups in which the child desires to belong and seeks

status That is to say, attitudes and behavior of a child to-
ward a teacher may be as much an expression of a *group* atti-
tude as it is an expression of an individual's attitude

Adult Insight into the Self

We conclude this discussion of children's relationships
with parents and teachers by returning to a principle empha-
sized throughout the chapter namely, that an adult's at-
titudes toward children's behavior and his relations with
children are to an important degree the result of his own
developmental history, purposes, goals, and values. It is not
sufficient that an adult be familiar with the fields of knowl-
edge suggested above as they apply to children. He must, in
addition, have insight into the manner in which the various
factors of development have interacted to make *him,* the
adult, what he is himself. Failure to achieve such insight into
one's self is one reason why adult-child relationships are less
than optimal; for the adult often rejects pertinent informa-
tion and viewpoints because they are emotionally disturbing
In such an event, no progress is possible. Or, it may be, that
the adult intellectually accepts as plausible the pertinent in-
formation and viewpoints regarding human development,
but still fails to make a personal application which will affect
his own behavior and attitudes. There may be several reasons
for this· well established adult ways of thinking and acting
are not readily modified, the adult himself may be socially
and emotionally maladjusted to the same or similar problems
as those that arise to disturb or confuse the behavior of chil-
dren.

Thus a child's behavior and its varied effects are not alone
the result of his own basic motives, or needs, and expanding
desires, nor of his biological and social inheritance; they are
the result of these as they affect and are affected by the nu-
merous institutions and persons encountered by him. Among

the most important of these institutions are the schools with their teachers. Most children do not become serious "problems," even though transitory minor crises appear. But an appreciation of the factors of development and behavior make it clear that even in the more serious cases the emphasis is misplaced if we speak of "problem children." It is sounder to speak of children with problems, for by so doing no onus is placed on the child, and interaction of the individual with environmental forces, including adults, is more explicitly recognized.

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IX

STUDYING THE INDIVIDUAL

IN THE preceding chapters we have examined and dis-
cussed the forces which are at work in human develop-
ment and behavior, and which determine the manner in
which individuals develop Teachers, even in the elementary
grades and kindergarten, are confronted by children having
an important and relatively long developmental history It
is desirable, therefore, that teachers be familiar with the
methods that are employed in studying a child in an effort
to discover his characteristics in some detail at a given time,
and, so far as possible, the reasons for the existence of those
characteristics.

The techniques and devices briefly discussed in this chap-
ter are valuable, it will be clear, for the study and better
understanding of children who present "problems." But
they are also valuable to the teacher in getting a better un-
derstanding and appreciation of "normal" children, for the
techniques and devices presented will indicate the complex
nature of development and behavior in any case. Teachers
will thus have a more soundly supported view of the be-
havior and problems of adjustment relevant to all children,
whether they are "problems" or not.

Ideally, of course, it would be desirable that the profes-

sional preparation of teachers should include opportunities for intimate study of a few children's development and behavior, extended over a period of some months at least For the purpose of learning about developing and behaving children, there is no completely satisfactory substitute for first hand, face to face experience First hand experience, if it is to be significant and meaningful to the student, needs to be complemented by collateral systematic study of relevant psychological facts and theories in order that children's behavior and development may be interpreted In other words, we cannot displace systematic study of development and behavior by student observation. To do so would be to deny the student the benefit of the experiences and the results of reflective thinking by the many who have preceded him in the study of human behavior and its meaning Our purpose in this chapter is to indicate the extent of the problems involved in making a study of individual development and to indicate the methods, in general, whereby one has to proceed.

General Procedure

When an individual is studied, it is necessary to investigate certain broad aspects of his personality, environment, and life. physical, social, intellectual, scholastic, emotional. Each of these, of course, has its subdivisions. Within each major division, numerous facts may be found and observations made Many of the facts and observations will cut across two or more of the aspects. Nevertheless, for the purpose of making a study of an individual, some such division into aspects (often called "areas") is essential. When, however, the data have been gathered and the observations made relevant to each of the aspects, they must be interpreted. And in making an interpretation, emphasis must be upon a meaningful, comprehensive "picture" of the whole child, with whom the preceding chapters also have been concerned

In dealing with a rather complex problem of development and behavior, isolated facts and observations under each of the aspects—intellectual, physical, social, and the others—have only a limited usefulness, and at times none at all, in the handling and solution of a child's problems of adjustment The developmental and behavioral "picture" of the child can only be derived through the interpretation of the several aspects, or areas, into a significant whole. When, for example, a teacher attempts to interpret a child's attitudes, behavior, and performance in school, it is often necessary to know his home status, his physical condition, and his status among his peers, as well as his intellectual ability. Similarly, when parents attempt to understand a child's attitude toward school, it is necessary that they take into account, among other things, the child's intelligence, his status among his fellow pupils, and the teacher's attitude toward him. If we find a child who is overaggressive on the playground, the explanation might be found in his unsatisfactory experiences in the classroom or in an inferior status imposed upon him in the general community. Again, an excessively zealous child in the classroom might be overcompensating for feelings of inferiority or rejection outside of school. (See "Compensation" and other "psychic mechanisms" in Chapter XVIII.) The pediatrician who is puzzled by a child's "lack of appetite," for which he can find no organic reason, will do well to get a competent report and advice concerning that child's emotional environment and experiences at home and school.

Limited Studies

It is not necessary, however, to carry out an elaborate case study, stretched through a long period of time, to meet *every* "problem" presented by every child. There are instances where only brief, limited observations or analyses are necessary. For example, suppose we have a child who is doing poor

work in arithmetic. The first question to be asked is whether his level of intelligence is adequate for the subject-matter being taught. A valid answer to this query, provided through the use of an appropriate and correctly administered intelligence test, might be all that is necessary, namely, the child does not have the mental capacity for the given level of arithmetic. Assuming, however, that the pupil's intelligence level is adequate, it then becomes necessary to examine further A good diagnostic test in arithmetic might reveal specific difficulties which impede progress, or it might show a rather poor preparation in arithmetic in general. Or it may happen that the child has been handicapped by a previously undisclosed auditory or visual defect If the problem does not yield to these relatively simple and direct analyses, it is necessary to know more about the pupil's recent and his less immediate school history, or perhaps something also about his former teachers; or perhaps something about his older siblings and the manner in which they are being used by the parents to motivate our pupil who presents the "problem" in learning arithmetic. Generally, it will not be necessary to conduct an elaborate, comprehensive, and exhaustive case study to solve this kind of problem.

In another instance it might be found that a boy or girl is beginning to assume a new, and perhaps more aggressive, role in the social group. The changing status might be due to that child's relatively early acceleration of physical growth and psychological development accompanying the onset of puberty. The earlier onset of puberty may also be attended by a loss of interest in one's own age-group and a search for activities with older groups Conversely, the boy or girl who is retarded in physical development may encounter difficulties of adjustment in his own age group, and will seek more congenial and perhaps aggressive roles among younger children. In instances such as these, the study of the child's physi-

cal status—a "segment" of his personality—will often suffice to account for the "problem"

The point, briefly, is that although comprehensive studies are essential to an understanding of how and why any individual came to be what he or she is, the solution of a *particular* problem in learning or behavior at a given time does not necessarily demand or warrant such a comprehensive study. The elaborateness, comprehensiveness, and duration of a case study should depend upon the nature of the problem to be solved. Experience and skillful discernment are required, however, to determine how far one should probe in a particular instance.

Assuming, then, that one wishes to conduct a comprehensive case study—and every teacher, as an enlightening experience, would profit from making one—the following methods and devices are employed In presenting them, we remind the student that there is no single and fixed *way* of conducting the study, nor is there just one *pattern* in which the data and observations are to be obtained and organized But regardless of the particular pattern employed, the component parts are common to all.

Methods of Getting Data Interviews

Interviews with the child himself, with parents, teachers, other adults, and possibly with siblings and playmates will be necessary, for, as already stated, it is essential that information be obtained concerning a child's life and behavior in his several environments. Interviews are most profitable if the investigator has formulated or shortly formulates one or more hypotheses concerning the child and his environment Otherwise, interviews may be rather haphazard. In other words, the interviewer should have a conception of what he is looking for and what he may expect to find.

The purposes of interviewing parents are: (1) to learn

about the child's past history, (2) to learn about the kind of adults with whom the child is living, (3) to discover parents' attitudes toward the child, and his attitudes toward them, (4) to observe the social environment, in general, which is contributing to the child's development and becoming part of his personality, (5) to learn about the parents' attitudes toward the child's school, playmates, siblings, and other persons with whom and situations with which the child lives or comes into contact

In interviewing teachers, the purposes are similar to those in the case of parents (1) to discover teachers' attitudes toward the pupil, (2) to get their estimate of his abilities, (3) to learn about the pupil's school history, (4) to discover the pupil's attitude toward teachers and school, (5) to discover teachers' attitudes in general, as toward national, "racial," and economic groups; (6) to learn about the pupil's status in children's groups; (7) to obtain the teachers' interpretations of the child's behavior and traits (which interpretation may or may not be correct)

Interviews with the child himself are also essential. They may reveal (1) his understanding and opinions of or his feelings toward his social relationships and other people with whom he has to deal, including parents, teachers, siblings, and playmates; (2) his interests and abilities; (3) his "psychic mechanisms," if any. (See Chapter XVIII) An interview with a child differs from that with an adult largely in that the former must be conducted quite informally, the child being given much more free rein to take his own course than the adult is given.

The reason for interviewing siblings, playmates, and adults other than parents and teachers (where necessary) is to supplement or to confirm information already obtained, and to test hypotheses which may have been formed through earlier information and observations.

Projective Techniques

Projective techniques are devices whereby the child expresses, or "projects," his feelings and attitudes upon or into some part of his environment. As such, they are techniques of discovering an individual's past experiences and what his inner feelings about them are. The feelings and attitudes are expressed indirectly through the employment of some apparently innocuous medium.

Children's compositions, when not restricted by rigid prescriptions, sometimes reveal aspects of their personalities their interests, desires, satisfying and unsatisfying experiences, and their attitudes toward various persons. If freedom is permitted in the use of drawing, painting, and plastic materials as part of a narrative, or followed by a narrative, the results may be psychologically revealing Children's play with and organization of purposefully selected toys (of people, animals, furniture, automobiles, trains, and others) can at times provide useful clews in the interpretation of their behavior and attitudes Children's and young adolescents' written statements of what a poem or short story "means" to them also often provide important leads.[1] Incomplete pictures may be presented, with the request to the child that he tell what the rest of the picture should be.[2] Or a completed picture may be presented with instructions that the child tell the story contained in the picture.

These examples do not exhaust all possible projective techniques, but they are among the most commonly used. No doubt, students of personality and behavior will devise other

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[1] A poem or short story is carefully selected with a view to its breadth of possible significance for different listeners The pupils are instructed to listen, and to write anything they please upon the conclusion of the reading

[2] See Henry A Murray, et. al , *Exploration in Personality,* Oxford University Press, New York, 1938 Another projective technique is the Rorschach method See Samuel J Beck, *Introduction to the Rorschach Method,* Monograph of the American Orthopsychiatric Association, no 1, 1937.

indirect approaches that will also provide more or less valuable clews to the individual's feelings and attitudes, and these clews in turn will serve as suggestions in the interpretation of that individual's personality and behavior, or as a basis for further investigation.

Rating Scales

Rating scales are a form of questionnaire covering a number of important behavior or personality characteristics. There are scales for rating the child's parents, home, and general environment, as well as those designed for evaluating the child himself The ratings are made by the investigator who, to complete the task adequately, must make a number of observations. The following are two illustrations; one item on the child, and one on the psychological atmosphere created in the home by the parents [3]

Does he [the child] attempt to dominate social situations, to take the initiative, to plan the activity of the group? He need not be successful as a leader, does he attempt leadership?

A Habitually tries to direct and dominate others Bossy
B Usually attempts to dominate but may play a submissive role if an older child or an adult is directing a game
C. Is aggressive where he feels that he is an authority, as when playing a game which he alone knows well or in handling a younger child
D No aggression Does not attempt to take leadership Either follows or ignores others.

How emotional is the parent's behavior where the child is concerned? Is the parent highly emotional, or is it [parent's behavior] consistently cool and objective?

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[3] From Horace B English and Victor Raimy, *Studying the Individual School Child A Manual of Guidance,* Henry Holt & Co , New York, 1941, pp 95 and 98 This is a very helpful manual for students It outlines procedures in making a case study, evaluates techniques and instruments used, and offers assistance in the interpretation of results

A. Constantly gives vent to unbridled emotion in reaction to child's behavior

B Controlled largely by emotion rather than by reason in dealing with child

C. Emotion freely expressed, but actual policy seldom much disorganized

D. Usually maintains calm, objective behavior toward child, even in face of strong stimuli

E. Never shows any sign of emotional disorganization toward child, either directly or in policy

Rating scales of the physical characteristics of the home include such items as the type of neighborhood, the type of house or building, number of rooms, presence or absence of modern equipment, number and kinds of books, magazines, and newspapers, cleanliness and orderliness, and other such items which are indicative principally of the family's socio-economic status. These physical elements are significant and symptomatic of a child's developmental opportunities They must be considered in conjunction with the emotional and intellectual environment provided by the parents.

Check Lists

Check lists are simplified rating scales concerned with *concrete* and readily identifiable activities. For example· "Strikes playmate"; "Runs to adult for help"; "Responds cheerfully when given directions", "Accepts suggestions pleasantly"; "Offers suggestions in group activities"; "Helps playmates." Each time a given behavior occurs, it is checked on the list. Thus it is possible to state factually how many times each of a variety of activities occurred in certain situations, under the given set of circumstances. These factual data must then be interpreted to discover what their meaning might be and how they might fit into the rest of the "picture "

Obviously, it is impossible to have a check list that will

cover everything a child is likely to do during a given period
It is necessary, therefore, to prepare a list in advance, the
items depending upon what the investigator's purposes are,
or upon what hypothesis he may be seeking to test.

Time Samples

Time samples are careful records of the frequency with
which a given special kind of behavior occurs within a speci-
fied time—usually a few minutes. Typical of behaviors sam-
pled are the following· pulling at ear lobes, drumming on
desk with fingers, "nervous" movements of shoulders, looking
out of window, and other tics and evidence of "inatten-
tion." When time samples are taken at different hours of the
day and under different conditions, it is often possible to
isolate the factors in situations giving rise to unusual or un-
desirable behavior, and, as standards of comparison, to com-
pare one individual's behavior with that of others in his
group.

Diary Observation

Diary observations of a child's behavior are accounts of
what one, has observed or remembers having observed during
a period of time, usually not less than a half-hour. The full
record is made after the activity has taken place. It is, there-
fore, likely to suffer from the inaccuracies attending attempts
to recall a situation which has been filled with rapid activity
and detail. Inaccuracies and omissions, however, can be min-
imized by making brief notes of occurrences and details dur-
ing the event or observation. But in any case the full account
of the observation should be recorded at the earliest possible
moment afterwards.

The diary record should report the development of a com-
plete situation· its beginnings, its course of development,
intervening circumstances, its outcome In the report, it is

essential that a clear distinction be made between the recorded facts and their interpretation

In a number of nursery schools and child study institutes, the fallible diary of observations is being supplemented or replaced by sound motion pictures which record broad, flexible, dynamic, though controlled, situations The advantages of sound moving pictures are obvious, a very noteworthy advantage being the fact that any segment of the total situation can be repeatedly shown and closely scrutinized.

The diary technique is useful, however, even with its defects, for the investigator observes the child in relatively free activity wherein a variety of factors are at work And the investigator's perception and understanding of behavior are sharpened.

Samples of Work

Samples of the child's work, both at home and at school, are sometimes useful as supplemental concrete evidence of interests, abilities, and disabilities Such samples may also have a place under "projective" materials, already discussed, such as drawings and written compositions But that is not always the case, for the child's efforts in spelling, arithmetic, "shop," handwork, and other performance also provide tangible evidence of abilities or disabilities, and possible sources of satisfaction and dissatisfaction in situations which constitute a large and important segment of his life.

School Records

School records—too often meager—can be very suggestive and useful. Records of absences, for example, may be indicative of the child's attitude toward the school or the teacher, or they may be symptomatic of parental attitudes toward schools and education. On the other hand, frequent absences may be related to a child's economic status (malnutrition,

the necessity of working), to his health, or his general physical status

In some schools, records include more than details of attendance and reports of physical condition They may provide penetrating reports and accounts of a pupil's behavior, attitudes, abilities, and interests These latter reports should provide insights into a child's personality traits especially as they function in his social relationships with his peers and with adults. These reports at times do more, they may reveal the teachers' attitudes toward this particular child, thereby further illuminating the child's school accomplishments and his attitudes toward school and learning.

The full school record should include, in addition, information concerning the following, some of which are discussed further in subsequent sections of this chapter. records of objective achievement tests, tests of general and special abilities; tentative educational and vocational plans; autobiographical records, work experience in and out of school; extracurricular experiences in and out of school, records of interviews, samples and records of outstanding attainments; courses failed

School Marks

Marks, of course, constitute a large part of an individual's school record. Although marks and marking systems have been subjected to severe criticism—and much of it justified—they nevertheless, may be valuable in achieving a fuller understanding of a pupil's intellectual traits and interests. For, in spite of the subjectivity of school marks, they do possess some degree of validity as a measure of intelligence required in school subjects If it happens that an individual's marks are in serious conflict with other indications or evidence of his capacities, then the investigator has a clew that should direct him to seek out probable causes of the inconsistency,

causes that might lead him to the discovery of significant factors in that individual's behavior and interests.

Objective Tests and Scales

Some of the most readily available and most reliable of school records are objective test results. The most frequently used objective tests are those of *school achievement* and of intelligence. The former include standardized tests in a wide variety of subjects: for example, reading, spelling, arithmetic, history, English usage, the sciences, and others. The merits of well standardized objective tests are that they are better constructed than a teacher's ordinary test in that the items are more carefully selected and can be of a more comprehensive character, their scoring is free from subjective judgment; grade norms are provided whereby a particular pupil's achievement can be compared with that of others in the same grade, as well as in grades above and below, and each child's progress in a subject can be determined on a scale. There are, to be sure, certain disadvantages in the uncritical and sole use of objective tests as measures of pupil-achievement. But these disadvantages will not be discussed here, for we are concerned only with the possible utilization of test results as part of a larger study of an individual.

In spite of recent criticisms against them—often unwarranted—standardized *tests of intelligence* are an essential part of the study of an individual's intellectual development. Intelligence test results may cause us to question or even revise our subjective judgments regarding an individual's capacity; for subjective opinions of intellectual capacity are not infrequently erroneous. The results of these tests should supplement other factual data relevant to an individual's intelligence. In fact, the results may at times provide the answer and solution to the difficulties of a pupil who presents

an adjustment-problem at home or in school. Failure on the part of parents or teachers to recognize a child as deviating significantly above or below the "general run" of the group may be the source of that child's "problems" in both learning and behavior.

This is not the place to undertake a critical discussion of intelligence tests what they measure, their uses, their limitations, how one's rating on them is affected by the complexity of one's intellectual and physical environments from conception onward through the developmental period. Some of these matters have been discussed more or less explicitly in earlier chapters of this book. It is necessary at this point only to state that failure to utilize intelligence tests in studying an individual's development constitutes a serious omission. Once having obtained intelligence test results, however, it is imperative that the derived indexes—mental age (MA), intelligence quotient (IQ), decile rank, or percentile rank—be used with skill and insight.[4]

Tests of *special aptitude* help to fill in the "picture" of an individual. But their results must be used with caution; for it would be a mistake to label a child and direct his course on the basis of aptitude tests alone. Generally, when we speak of aptitude tests we mean those in music, drawing, and mechanical performance. The term is also used, however, to designate those tests which are designed to *predict* one's per-

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[4] Mental age indicates the level of mental development reached For example, a mental age of 10 years represents the intellectual level of the "average" ten-year-old child, as measured by the test used. Intelligence quotient is an index of brightness, or of rate of mental development An IQ of 100 (1 00, with decimal point omitted) is the "average " Deviation above or below indicates relative superiority or inferiority For instance, one child in about a hundred attains an IQ of 135 or better, while about two in a hundred fall below 73. A decile rank or percentile rank indicates the tenth part or hundredth part, respectively, of the group in which an individual is located That is if a child is in the tenth decile group, he falls within the highest ten percent of the distribution, or if he places among the highest 5 in a group of 500 he has a percentile rank of 100, or in other words, he is in the highest one percent

formance in a given subject for example, linguistic aptitude, scientific aptitude, mathematical aptitude. It is clear that if aptitude test results are available for a particular child being studied, we have additional useful data regarding his equipment and possible promise of development. These data often are valuable supplements to results of objective school achievement tests and intelligence tests

There are also *scales, inventories,* and *blanks* which are designed to discover, in a systematic way, some of the individual's more elusive, less easily definable, less readily measurable aspects of personality. But these inventories are of little use or value with young children whose experiences have, of necessity, been relatively limited, and whose capacity to introspect and report with discernment on their interests, their "problems," their habits, or their feelings about things is still too limited The inventories, scales, and blanks are intended to reveal, for example, an individual's degree of introversion-extroversion, his degree of honesty, his moral and ethical discrimination, his "complexes" (if any), his "neurotic" tendencies (if any), his occupational interests (not his aptitudes). The devices intended for these purposes can be useful in the hands of the skillful guidance counselor or clinician in dealing with adolescents and adults, but they have, obviously, little or no role to play in the case of young children.[5]

The Vineland Social Maturity Scale, already referred to (See Chapter II) is, however, a standardized rating instrument which, if employed and interpreted with skill, may be regarded as an exception to the foregoing comment on the very limited usefulness of these kinds of measuring instruments, so far as young children are concerned.

Important information and data regarding a young child's

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[5] For a descriptive list of these kinds of instruments, see Edward B Greene, *Measurements of Human Behavior,* The Odyssey Press, New York, 1941, Chapters 15-18

interests, hobbies, play, likes, dislikes, fears, and so on, will have to be obtained by the investigator largely from parents, teachers, others who are associated with the child, and from the child himself in rather free discussion This source of information will be further presented in a later section of this chapter: "Methods That Can Be Readily Used By Teachers."

Physical Measurements

A child's health history and physical status are, of course, significant aspects of his developmental history But they are significant also for a fuller understanding of both his physical and psychological characteristics as they exist at the time he is being studied. This fact has been pointed out in preceding chapters, in connection with the development of various forms of behavior and abilities. (See, for example, Chapter VII.)

The teacher or student making a case study will, of course, not make a physical examination. But he will have to be familiar with the signs of ill-health, poor nutrition, and physical enervation in order that he may better understand children's and adolescents' physical functioning and psychological traits.

Students and teachers, in evaluating physical status, can observe a variety of aspects, such as the following outstanding physical traits affecting general appearance (for example, height, weight, physical deformities and anomalies); visual difficulties (crossed eyes, squinting, holding book too close to eyes, inability to read from blackboard, and others); auditory difficulties, unusual nasal conditions (mouth breathing, adenoidal speech); speech difficulties or peculiarities; consistently bad breath; skin condition, especially lips and eyelids; posture, gait, handedness, general energy level (sleepiness or alertness, precision of movement).

Histories

This method of obtaining information may be regarded as a special form of the interview. Whereas an interview is rather general in character and concerned largely with the present or with the more recent past—although not random or haphazard—history taking is directed specifically toward obtaining information concerning the child's *development* in respect to a rather well defined aspect for instance, disease history, pre-school history of mental development, or behavior in early childhood

There are, to be sure, some "baby tests" and "developmental scales and norms" for the pre-school period, designed to show the rate and quality of mental development, but their use requires actual observation and testing of the infant or child *during* his earliest years Since relatively very few infants and children have had or now have the advantage of such expert psychological attention, and since relatively few have attended or now attend nursery schools where systematic observations and tests can be made, it becomes necessary to use the history taking method to ascertain certain very desirable and useful information

In the field of mental development, we should like to know, among other things, the age of earliest "talking" (recognizable use of words), the ages of crawling and creeping, the ages of walking with and without help, the age when "sentences" of more than one word were used, the ages when the infant first grasped a cup with both hands then with one hand, the age when social contact with other children was sought, the ages when simple commands and prohibitions were understood, and many other items as well.[6]

Information such as this obtained from parents, relatives, or others is, clearly, subject to considerable error; for the unreliability of memory and recall—not to speak of distor-

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[6] For details of such scales, see Edward B. Greene, *op cit* , Chapter 8

tions—is well known The results of such history-taking might, therefore, be of but little value in a given instance. Yet, in some cases, enough information of reasonable validity might emerge to warrant the effort Disease histories, of course, are likely to be more reliable than those of psychological development, since the former are more dramatic, more acute, and of more concern to parents In recent years, however, parents have been encouraged to keep detailed records of developmental events, so that histories of children's psychological development might, more frequently now than previously, yield valid information.

Organizing the Materials

After objective data and other materials have been obtained by means of some or all of the methods sketched, it is necessary to organize them according to some scheme of classification. Pertinent materials and aspects of the individual's behavior and characteristics must be arranged in a sequence and plan in order to reach recommendations of procedures respecting the individual, or even the more general environment. Naturally, this organization is essential if the results of a study are to be correlated, integrated, and interpreted There is, however, no single scheme of organization that is "best." There are numerous variations in detail, but all useful classifications, tested in practice, have much in common. The following outline is one form, rather commonly used, though minor variations might be introduced here and there:

A The Individual
    a Present condition
        1 Description of behavior social and emotional
        2 Physical condition and activities
        3 Performance ability and achievement
        4 Living conditions physical, emotional and intellectual

  b History
     1 Birth and infancy conditions of development
     2 Health history
     3 Educational history
     4 Emotional history
     5 Other experiences and activities

B Family History and Present Condition
  a Parents
     1. Social and emotional traits
     2 Intellectual status
     3 Educational and economic history
     4 Age and health
  b Siblings
     1 Number and ages
     2 Attitudes toward child being studied and toward
        one another
     3 Emotional traits
     4 Intellectual traits
  c Grandparents
     1 Place of residence and contacts with child
     2. Age and health conditions
     3 Attitudes toward child's parents
     4 Educational history
     5 Health history
  d Collaterals (aunts, uncles, cousins, others)
     1 Health history
     2 Place of residence and contacts with child
  e. Other members of immediate household (domestic
     help, hired men, etc)
     1. Their quality
     2. Associations with and responsibilities in child's care
     3 Ages, length of time with family, etc

The outline that follows, though somewhat more elab-
orate, is a very good one, being especially valuable for the
study of school data [7]

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[7] Adapted from Horace B English and Victor Raimy, *op cit*, p 103

I Description of case (with emphasis upon the particular "problem")

II Home Background

III. Intellectual Development
    A Pre-School History
    B Standardized Tests
        1. Intelligence
        2 Reading
        3 Arithmetic
        4 Spelling
    C School Grades
        1. Teachers estimates
        2. Comparison of estimates with scores made on standarized tests

IV. Physical Development and Health
    A Early Development
    B Disease History
    C Present Condition
    D Height and Weight
        1. Measurements
        2 Psycho-Social Effects
    E. General Observations

V Social Behavior
    A Reactions toward other children
    B Reactions toward adults
    C Attitudes toward the larger world

VI Character and Personality

VII Changes Observed from (beginning) to (end of study)

VIII. Summary and Recommendations

IX. Chronology of Field Visits

X Special Difficulties Encountered in Technique of Study

The student, counselor, or clinician in the process of inter-
pretation will not only integrate his data and information,
but he will attempt to relate and evaluate them with respect
to principles of emotional, social, motor, and intellectual
development, such as those presented in the preceding chap-
ters Finally, in the summary of his case, he will state certain
recommended procedures to be used by parents, teachers,
and others handling the child These recommendations will
presumably suggest the continuance of certain aspects, the
modification of others, the elimination of undesirable factors,
and the addition of new desirable factors. All recommenda-
tions, of course, are to be evaluated and, if necessary, modi-
fied as they are applied

Cross-Sectional and Longitudinal Methods

Studies of human development and behavior, for groups
or for individuals, need not be restricted to case studies, nor
to the solution of adjustment problems. Child psychologists
and anthropometrists have quite legitimately been interested
in the course of development, over the years, of a single body
part, or of a psychological function, or of a type of behavior.
Common among these are, for example, growth in height
and weight, in size of the skull, in strength of grip, develop-
ment of motor precision, of vocabulary, of social contacts, of
general intelligence, differentiation of emotional response.

Earlier studies (and some yet today) employed the *cross-
sectional* method almost exclusively. That is, "representative
samplings" of different children at successive ages were meas-
ured or tested, an average was obtained for each age-group,
norms (averages) were thus established, with which any
individual's rating was compared; and, based upon successive
age-group averages, curves of development were plotted
Thus, it can be said, for instance, that the "average" vocabu-
lary of the 12-month-old child is one or two words, and of the

six-year-old child about 2500 words Similarly, norms can be given with respect to height, weight, age of walking, degree of emotional differentiation, and so on. Against these averages, the performance, development, or rating of any single child can be viewed, followed by a judgment regarding that child's relative status, acceleration, or retardation in respect to the trait under consideration

By means of the cross-sectional method, averages and norms may be determined not only for age-groups but for each school grade, or for each sex of a given grade or age. In fact, averages and group trends may be determined for any kind of group one chooses to define and measure

The cross-sectional method is no doubt legitimate and useful in establishing "general trends" and in furnishing a basis for individual comparisons within a group. But when the method is used, its limitations should be recognized In the first place, the validity of age averages, and hence of the curve of development, depends upon the adequacy of the "representative samplings." In the second place, individual developmental idiosyncracies from year to year are lost sight of in the group data and curves. In the third place, group expectancies—as represented by norms—do not necessarily give us a standard for *individual* expectancy That is, what may be "normal" for the group is not necessarily "normal" for a particular individual. In this connection, the most abused and misused tables of group-norms are those of age-height, age-weight, and height-weight. In adhering uncritically to these tables, unwise attempts have been made to force children, adolescents, and adults into conformity. Finally, tables and graphs based on group data do not and cannot take into account the complex of factors which have been effective in promoting or retarding the development of the traits or functions in the individuals who constitute the group

As a result of these limitations of the cross-sectional method

—particularly the second and the last ones—more recent years have seen an increasing emphasis upon and use of the *longitudinal* method of studying development When this method is employed, the *same individual* is measured in respect to a given structure, trait, or function at specified intervals over a period of time. The thing being measured might be height, weight, blood pressure, size of vocabulary, intelligence test scores, strength of grip, motor skill, quantity and kind of social contacts, emotional responses, arithmetic ability, or any other

After a number of such periodic measurements have been made, it is possible to prepare a table and construct a graph showing the progress of *each* individual Curves may then be compared for similarities and differences. More important, however, than these comparisons is the fact that each individual's curve of development can be studied and evaluated *in the light of other known facts* about that individual during the period of measurement. It is thus possible to see or to infer certain causal relationships between the development of a given structure, trait, or function and associated or concomitant phenomena.

For example, in the case of a given child, it might be noted that the size of his vocabulary takes a rapid rise at the age of two years and eight months. It is also known that this child has been attending nursery school for two months. There have been no other important changes in his environment. It could be inferred, then, that the rapid rise in vocabulary at this stage is due to the stimulation provided by the other children and the situations in the nursery school. An appreciable number of such observations and inferences will justify us in concluding that nursery school attendance promotes vocabulary development. Or, to take another example, the height curve of a particular boy shows an early and sudden acceleration—say, at age eleven A record of his physiological development reveals that his puberal cycle began at

the age of eleven years and six months. These two facts, when supported by other similar observations, then warrant a conclusion regarding the relationship between growth in height and the onset of puberty All psychological, social, anthropometric, and physiological characteristics can be similarly treated if longitudinal studies are made and if a variety of concomitant or effective factors are known

In general, then, it can be said that the longitudinal is superior to the cross-sectional method in that it puts primary emphasis upon the individual, it reveals the "personal idiom" of development, and by doing so, it enables us to get a better understanding of the interplay of developmental factors; a better understanding of the "whole person "

Methods that Can Be Readily Used by Teachers

It is generally difficult or even impossible for classroom teachers to undertake a systematic and comprehensive study of even one child There are, however, a few methods and procedures that can be employed by them in an effort to get helpful insights into the behavior and scholastic performance of a few of their pupils [8] These insights, furthermore, should have transfer value in that they facilitate the teacher's understanding of other children as well. To begin with, it is advisable for a teacher to select two children for study one of whom is normal, well-adjusted, well-liked, and the other of whom presents some problems or difficulties These two children, however, should not be extremes. neither the "perfect angel" nor the profoundly difficult child, both of whom might be well beyond the range of incidental study, and

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[8] For elaborations of these methods see Fritz Redl, "What Should We Know About a Child?" and "Helping Teachers Study Their Children," Division on Child Development and Teacher Personnel, Commission on Teacher Education, American Council on Education, Chicago, 1940 Also Stuart M Stoke, "Keeping Behavior Journals," and "The Social Analysis of the Classroom," *ibid ,* 1940

who, furthermore, are too far removed from the general quality of pupils to be most useful as illustrative cases.

We are assuming that teachers have or can have available to them such information as mental ages and intelligence quotients, or their equivalents showing the pupils' general levels of ability, results of objective tests in school subjects, or previous marks, or both, results of physical examinations showing conditions of hearing, vision, and other relevant physical facts.

These data, with attendance records, often constitute the core—sometimes most—of a child's *cumulative school record* But a fuller record is necessary if it is to be most useful to successive teachers The cumulative record should include information on such matters as degrees of attention-inattention, and conditions under which each occurs, evidence of ability other than test results, performance in various school subjects, attitude toward other pupils and theirs toward him; hobbies and extra-curricular activities, anything else that teachers deem pertinent. The record should contain a maximum of factual, concrete materials, and a minimum of interpretation and opinion. Omission of interpretation and opinion is not being suggested. What is being suggested is that the factual basis upon which they presumably rest should be available to all who use the cumulative record Unless this is done, there is the danger that others reading the record will have a pre-formed opinion of the pupil concerned It is also essential that the record be viewed as an account of the past, not necessarily a picture of the present; nor a prediction of the future Each teacher will thus be encouraged to study the child as he appears to him or her.

Behavior journals can be useful in dealing with problems of a transitory nature They are incidental records, kept for a single or temporary purpose. For example· A sixth grade teacher has the impression that a certain boy in her room is rather dull and inattentive, her impression is that there is

little to be expected from him But reference to data in the principal's office reveals that his intelligence quotient is very close to 100, and his mental age is normal for his grade. His health record shows nothing of importance of an unfavorable kind. These objective data, since they do not suggest a source of difficulty, make further search necessary. The teacher, therefore, keeps a record, over a period of some weeks, noting principally the degrees of attention, alertness, energy, and participation with other children It becomes apparent that at the beginning of each week, especially on Mondays, the boy is at a low ebb, but that he begins to pick up at mid-week, reaching a creditable level by Friday. Further investigation shows that the boy is taken by his parents on long week-end junkets to a large city,[9] with the result that it takes him several days to recover from his fatigue after returning home The teacher's opinion and treatment of the boy is bound to undergo favorable modification after discovering the causes of his apparent but not genuine stupidity.

The behavior journal is a flexible device Its content, extent, and duration will depend upon the nature of the problem and upon the relevancy of various aspects of the child's life in and out of school. Teachers who use it should not hesitate to record whatever seems pertinent, nor should they always feel they need specific check lists and inventories of behavior; for the journal can yield valuable insights when used to supplement objective data, as in the case above.

The *"Guess Who"* technique can be used by a teacher to find out what reputations children have in the opinions of their peers The following directions and several sample items will make this clear: [10]

In this booklet are some word pictures of members of your class. Read each statement and write down the names of the

[9] Stuart M Stoke, *Keeping Behavior Journals*
[10] *Inventory II,* University of California, Institute of Child Welfare, Berkeley, 1937

persons whom you think the description fits [Any number
of names may be put down under each, the same name may
be given under more than one word-picture, a pupil may
write his own name if the description fits him]
Here is someone who likes to talk a lot, always has some-
thing to say.
[Space is provided for six names]
[Each statement has its opposite.]

"Guess Who" inventories cover a wide variety of behaviors
and situations. The specific word-pictures may be grouped
under more inclusive categories and a pupil's general traits,
as seen by his fellows, discerned The number and extent of
traits to be used in a "Guess Who" inventory will depend
upon the purposes of the investigator and upon the ages of
the children involved

This technique can be widely and usefully employed, be-
cause teachers can devise their own inventories if they choose
Among the specific items that have been used are the fol-
lowing restless-quiet, talkative-silent, active-sedentary, dar-
ing-afraid, leader-follower, enthusiastic-listless, tidy-unkempt,
likes opposite sex-avoids opposite sex, fights-avoids fights,
friendly-unfriendly, and others.[11]

Teachers who use this technique will be interested in
discovering what reputations their pupils have among their
fellows, which children are valued and accepted, which are
rejected, which are ignored; and the reasons for their pupils'
attitudes. Not only that, but a teacher will often discover dis-
crepancies between his, or her, opinions of a certain pupil
and those of the pupil's peers. The reasons for the discrep-
ancy may also become apparent. A more effective approach
to the child and his needs will be possible, because certain
causal factors in his behavior will be revealed, and sugges-
tions for remedial treatment will be provided.

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[11] See Caroline M Tryon, *Evaluations of Adolescent Personality by Ado-
lescents*, Monograph, Society for Research in Child Development, vol 4, no
4, 1939.

Without attempting to make an exhaustive case study by means of the systematic and comprehensive procedures suggested earlier in this chapter, teachers can extend their information and insights in several directions *through utilizing available sources* Depending upon the type of community in which they are situated, teachers have more or less contact with pupils' parents parent-teacher meetings, school parties, community events, occasional formal interviews or friendly calls. At these times, encouraged by a few planned questions from the teacher, parents will readily discuss their own views on education and on their children's school, early life, health, home activities, sibling relationships, and the like. In other words, many of these meetings can be made occasions for an informal interview. Also, if there are siblings in the same school, occasions can be found or made for apparently informal interviews with them. By this means more information can be obtained concerning play activities, home situations and other relevant aspects. In small communities, teachers inevitably learn more about their pupils than is the case in large communities. Occasional information so acquired can be valuable in giving educators a sympathetic understanding of their pupils.

Neither the beginning student nor the experienced teacher should approach the family as a census taker or research "inquisitor," but should endeavor to establish and improve friendly relations that inspire confidence. Under these fundamental, favorable conditions, parents (some of whom are wary of all "officials") are likely to blossom forth in revealing conversation about the community, themselves, and their children. Children and adolescents, of course, have to feel that the teacher or other interviewer is their friend before they show what they are really like The degree to which the deeper purposes of an interview, formal or informal, are made explicit to the interviewed persons—adults, adolescents, or children—is a matter of tactful approach and careful judg-

ment for the interviewer His success depends on so conducting his relationships that antagonism is avoided and friendship strengthened, that no inclinations to conceal or distort arise, and that the social attitudes support a free exchange of opinion. This cautious, friendly approach is not a superficial, assumed attitude but is a genuine means of helping parents and their children to open the situation for study. As the friendship grows and the study proceeds, more direct methods may be used as the parents and the teacher collaborate in mutual understanding of one another and of the problem under investigation Skillful procedure may even result in older children's joining the search for the solution of their own difficulties

It appears, then, that teachers can have at their command many important sources of information concerning children they might wish to study. In a well conducted school, the following will be available intelligence test results, objective achievement test results, health and physical examination reports, all of these perhaps being but parts of a good cumulative record which, as already stated, includes much more pertinent material. Teachers and administrators can also, without too much effort, obtain information concerning their pupils' personalities as revealed in school and playground situations; they can discover children's status and relationships among their peers, there are the children themselves from whom the teachers can learn how they feel and think about people and experiences. This last is very important even if the children's views are in conflict with those of adults, for children's own feelings and beliefs guide their behavior. Much additional significant material can be gathered through occasional associations with persons living with the children. Finally, of course, children are in school about five hours a day; their behavior is rich and varied; painstaking recording of concrete items can yield many insights.

It has often been said, and with justification, that teachers,

who are not technically prepared to make case studies, are confused and discouraged by the elaborate techniques, the complexities and difficulties of interpretation, and by the terminology encountered in case studies presented to them by specialists. Their confusion is increased at times by differences of opinion among specialists themselves. On the other hand, we have indicated in this chapter that there are many problems which teachers themselves can handle after mastering the premises and the essentials underlying certain techniques and psychological procedures, and after making a planned attack on a problem, even though it is a transitory one. Teachers thus are enabled to follow developments in a given situation, to view the child before, during and after the process of study and modified educational treatment. At times, of course, help of an outside specialist will be necessary in the handling of a difficult case.

We are not suggesting that teachers abandon their primary interest in and responsibility for good teaching in favor of making case studies and "psychologizing" every child. The fact is, however, that studying children yields increased understanding not only of the children themselves, but of the very teaching-learning process itself. Studying the developing, behaving individual makes clear the fact that teaching and learning are not merely matters of "giving instruction" and giving certain "laws" of learning a chance to operate In the teaching-learning situation, we are dealing primarily with a complex *learner* who has to be understood; we are operating under complex *environmental conditions,* both in school and out, which also have to be understood and under which we, as teachers, are trying to make certain *learning materials* effective in the development and behavior of the learner.

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PART III

Diverse Approaches to the Psychology of Learning

X

A SEQUENTIAL OUTLINE OF
APPROACHES TO LEARNING

THE STUDENT who has traced human development from infancy through childhood and adolescence to adulthood, noting carefully the changes in biological growth and motor control, in maturing emotional attitudes, in the nature of social relationships, and in intellectual attainments, is ready to investigate more specifically the psychological problems of the learning-teaching process. The complex psychology of learning may be clarified without misleading simplification by considering separately nine different approaches that are being made daily by teachers and parents wherever modern culture has penetrated If civilized man had fewer ways of approaching his environment, and if the teachers and psychologists of the past and present had been in closer agreement, we might not need to follow so many diverse strands to weave a pattern of the learning process Facing the situation as it is, however, we leave the reader to judge as he proceeds in the study which of the following approaches to learning may be eliminated or made subsidiary:

1. Conditioning
2 Pseudo-mechanical repetition

3 Trial and chance success
4. Retrial for motor skill
5 Insight through visual survey
6 Reflective thinking
7 Esthetic taste
8. Emotional stability
9. Social organization

Each of these nine approaches has, at one time or another, been overemphasized by some group of educators who consequently neglected the other approaches. Pseudo-mechanical repetition, which is better known as rote memorization, was long considered the chief method of learning in school; conditioning, trial and chance success, and insight through visual survey have each been used by different psychologists as the fundamental or even the sole interpretation of learning; while vocational instructors often have concentrated too narrowly on retrial for motor skill, logicians on reflective thinking, artists on esthetic taste, psychiatrists on emotional stability, and social psychologists on the effects of group organization. The student of development and education, on the other hand, may find psychological understandings and educational values in all nine approaches to the complex and varied learning process. Nor should the student assume that every conceivable instance of learning is covered by the nine approaches offered here, for he should feel free to add other approaches to the list if they appear, just as the nine have been gradually accumulated out of the experience of teachers and psychologists over a considerable period of time

The sequential order in which the first six approaches are arranged in the list given above and in the discussions that follow is designed as a gradation from the relatively unintelligent activity of "conditioning" to the highly intelligent process of "reflective thinking" Beyond reflective thinking in the sequence are three other aspects of behavior—esthetic

taste, emotional stability, and social organization—which may involve and support reflective thinking While these last three approaches are not on a higher plane than reflective thinking, they are, at their best, highly intelligent forms of behavior which emphasize diverse aspects of human development. In the sequential study of the approaches, there will become evident also a change in the relations of the teacher to the learner from dominating control by the teacher toward indirect guidance of the learner—from dictatorship toward democracy. The usefulness of each approach on a particular occasion will be found to depend upon the developmental age of the learner, the nature of the activity being learned, and the social situation in which the learning occurs. The nine approaches are not mutually exclusive, for in complex acts of learning several approaches may be useful in interpreting the whole process. Thus the analysis of education into nine approaches is merely a device for reaching a critical appraisal of diverse interpretations and emphases offered in the current literature of psychology and education, and for attaining a comprehensive understanding of the unity that characterizes human development at its best.

A brief description of each approach to learning will be given below in order to orient the student in his discovery of the chief distinguishing characteristics of each as he proceeds and to aid him in an early appreciation of the relations of the different approaches to one another. The significance of the sequential order also will become more evident in this preliminary survey.

Conditioning

Conditioning is offered by the behaviorists as a simple, physiological explanation of learning. Two modifications of behavior will serve as illustrations. (1) A dog makes a response, such as salivation, to a *substitute* stimulus like the ringing of a bell, if the bell has been rung repeatedly imme-

diately before and during the presentation of food. The ring-
ing of the bell is thus a later stimulus that has become a
substitute for an earlier effective stimulus—the smell and
taste of food. (2) An infant makes a response, such as move-
ments of withdrawal accompanied by the unpleasant feeling
of fear, to a *substitute* stimulus—a furry object, such as a
white rat—when some originally unpleasant stimulus, such as
a sudden, loud sound, has occurred simultaneously and often
enough with the presentation of the white rat. It appears that
in both cases the "conditions" are controlled by the experi-
menter or teacher, while the learner is partially or totally
unaware of the modification of behavior that he is acquiring
It is clear also that the modification of behavior produced by
conditioning is limited to *shifting* an old response already
possessed by the learner—salivation or movements and feel-
ings of fear—to a new, substitute stimulus, such as the sound
of a bell or the sight of a white rat. The process of condition-
ing is useful mainly in infancy before the learner can com-
municate with his adult guides by means of language, and
while he must be under the continual care of a nurse, usually
his mother. At school age, conditioning may aid in overcom-
ing undesirable emotional attitudes, such as fear or dislike of
school, classmates, or teacher, that have been produced by un-
favorable conditioning. This approach is placed at a level
low in the scale of learning because of one-sided control by
the teacher, lack of awareness and choice upon the part of the
learner, and limitation of modification to mere shifting of
old responses to substitute stimuli without creative learning.

Pseudo-Mechanical Repetition

Pseudo-mechanical repetition, known commonly as rote
memorization, is an ancient schooling process of repeating
in an apparently mechanical manner exact verbal responses,
as in memorizing a definition, a quotation, or the spelling of

a word The prefix "pseudo" may be interpreted "false" and is used here to indicate that the process in the living organism is not actually as mechanical as it appears This approach to learning may be distinguished from "conditioning" by the fact that the learner is aware of his learning task and its immediate goal, as he is also aware of direction by the teacher. Pseudo-mechanical repetition is useful in so far as conformity in spelling and wording are required by social custom and exact thinking, and to the extent that merely varied and incidental contact with the words fails to produce the necessary verbal response. This approach to learning is still at a low level, because the learner is given no freedom to depart from the exact path laid down by the teacher and the textbook, and because the learner may not be given any responsibility for understanding the meaning of the words he spells or recites. In addition, recent studies of brain mechanisms throw serious doubt on the earlier notion that repetition produced certain fixed nerve pathways in the brain, a notion historically associated with learning by repetition. This adverse criticism of the brain-path theory further reduces the importance of any approach to learning that overemphasizes repetition

Trial and Chance Success

Trial and chance success, once a widely adopted approach to learning, is based upon experiments in which a learner (usually a sub-human animal) is confronted by an obstacle that prevents him from reaching a desired goal. For example, a hungry cat is shut in a puzzlebox from which he wishes to escape to reach food The box is so equipped that the *promiscuous* scratchings of the cat may *by chance* pull a cord attached to the latch and thus open the door. Likewise, after many varied trials that were failures, a child or adult may accidentally solve a mechanical puzzle, in which two pieces of twisted metal are to be separated. Through these occasional chance successes in repeated trials the learner finally

comes to make the required movement promptly and thus reaches his goal. As an approach to learning, trial and chance success seems to be on a higher level than conditioning since it involves the learner's awareness of his goal, and it is upon a higher level than pseudo-mechanical repetition in so far as the learner has more or less freedom for varied activity upon his own initiative In reality the learner's promiscuous activities are of no avail until he hits accidentally upon the trick movement designed by the experimenter or teacher. This accidental hitting upon the necessary movement corresponds to random or "wild" guessing in the area of verbal responses The meager benefits of trial and chance success consist in encouraging the learner to varied activity that may contribute to learning through approaches higher in the sequence. Trial and chance success still lies at a relatively low level of learning because the limitation of the learner's success to the accidental discovery of the teacher's trick promotes only slight understanding in the learner, and his progress is, therefore, usually slow and irregular.

Retrial for Motor Skill

Retrial for motor skill is the well known process of achieving sensory and motor coordination in the attainment of a skill which may be regarded by the learner either as his goal or as a means to various other goals. Walking, using tools such as hammers and saws, and hand writing are examples of skills commonly acquired In attaining a skill the learner has in view a goal toward which he proceeds, at first awkwardly, *modifying* his movements as he detects through his own experience the relation of the results attained to the goal desired. There is a striking contrast between, on the one hand, this continual modification in retrial for motor skill, and on the other, the more or less exact repetition in conditioning of certain responses following the given substitute stimuli, or

the exact repetition of certain sounds in pseudo-mechanical repetition, or the accidental production and eventual repetition of certain necessary movements in trial and chance success. The learner's freedom to try new movements and his ability to feel his way into the coordination may be supported by an adult guide who demonstrates the process either incidentally or intentionally, and who may make verbal suggestions during the procedure, but who does not require exact conformity in the early movements. It is evident, therefore, that this fourth approach to learning rises well above the three previous approaches in the degree of understanding the learner gains of the process as it goes on. The learner now acts intelligently as he participates in guiding his own learning rather than having his behavior modified by a dictatorial teacher who fixes conditioning factors, lays down pathways of repetition, or sets artificial traps in which success comes only by chance. Retrial for skill from infancy to adulthood typifies the creative possibilities of learning and the mutual interchange of experience between the learner and the teacher, both of which are significant aspects in the preparation for and practice of democratic living.

Insight through Visual Survey

Insight through visual survey has become the basis for an interpretation of learning differing radically from conditioning, pseudo-mechanical repetition, and trial and chance success. According to this approach, a *sudden* transformation of a problem situation occurs for a learner, because all at once he sees a *round-about way* to his goal or is able to introduce a *mediating implement* in the solution of his problem He discovers for himself some means of circumventing the obstacle or bridging the gap between himself and the objective that he has in view. For example, a dog or a child separated from his objective by a wire fence sees that he can reach the

desired object—a piece of raw meat or a toy—by running around the open end of the fence. Thus he performs a round-about movement rather than a direct one toward the objective. In another example, in which the use of a tool or mediating implement becomes an indirect means of bridging the gap, an ape or a child sees that by using a stick he can reach and rake in an objective, such as a banana or a ball, from which he is fenced off. It is evident that although his approach to learning depends largely upon visual perception, the sudden reorganization that occurs while the learner is facing the problem contrasts with the guidance given by the eyes in attaining motor skill. The two approaches certainly are coordinated, since skill in running or in using a stick as a rake is a necessary means, but the crucial moment when the flash of insight comes in the midst of the visual survey of the problem situation justifies distinguishing this approach from those described previously. The degree of intelligence apparent in the sudden change from uncertain hesitation or random activity to well-organized action with reference to a goal places insight through visual survey on a higher level even than retrial for motor skill. Both the repetition emphasized in the three lowest approaches to learning and the gradual modification characteristic of retrials for motor skill are superseded in the insight approach by sudden insight and complete learning. The relation of the learner to the teacher also undergoes a transformation, for the teacher now only sets a problem situation in which insight may occur, and he must refrain from the demonstrations and verbal suggestions that are appropriate in retrial for skill. It is clear also that the sudden flash of insight differs greatly from the sudden *chance* discovery of the required movement in a trial-and-chance-success experiment because insight involves a relatively complete understanding of the process *before it occurs* and usually carries with it the ability to apply the method in other situations. The learner in this approach

guides his action by his own insight attained through visual survey of the situation and so is a step further on the way toward responsible, considered activity which is essential in democratic organization and living.

Reflective Thinking

Reflective thinking depends so largely upon the use of language that it is regarded generally as an accomplishment of human beings only, and for them only beyond the age of infancy under the favorable surroundings of a language-using family or similar group. In contrast, motor skill is acquired by lower animals, for even the young chick must learn to peck accurately, while insight through visual survey is observed frequently in the higher animals, such as dogs and apes. Language, which often is not expressed vocally but is employed silently in the progress of thinking, brings into the learning process many factors that cannot be seen visually. Thus language and thought greatly extend the possibilities of solving problems, circumventing obstacles, and reaching goals beyond those possible in insight through visual survey alone. Reflective thinking, like insight, may be characterized by *sudden* transformations in the problem situation; but in thinking these transformations are called *suggestions* or hypotheses. This approach to learning differs again from visual insight because the learner on the reflective-thinking level takes time to scrutinize and explore ideationally the new suggestion before attempting the new kind of overt action, while on the visual-survey level overt action follows immediately the flash of insight. In actual learning, children and adults employ inseparably insight through visual survey and thinking in language terms. Scientific method, which is associated commonly with reflective thinking, consists in testing any suggestions or insights by actual trial. Since insights and suggestions, or hypotheses, come originally out of the experi-

ence of some individual, these approaches to learning encourage the individual initiative and responsibility usually associated with free, unshackled intelligence encouraged in a democracy. On the other hand, language, which underlies individual thinking, is the form of critical communication and exchange with other human beings also, and mediates the social sharing of ideas and interests that characterizes social democracy. The sharp contrast between the lower level of learning that employs language for conditioning and pseudo-mechanical repetition only, on the one hand, and the flexible use of language in reflective thinking, on the other, typifies a profound difference between dictatorship and democracy.

Esthetic Taste

Developing esthetic taste, is an approach to learning that involves the modification of sensory experience, that is, in the auditory, visual, gustatory, olfactory, tactual, and kinesthetic areas. Esthetic taste includes also the problem of how an individual comes to appreciate a wide variety of beautiful objects and events and to enjoy participating in such arts as music, graphic and plastic art, literature, and the dance. This esthetic approach is distinguished from reflective thinking not by attaining a higher level but by constituting a more or less distinct aspect of experience. No doubt motor skill and insight through visual survey with the accompanying development of sensory discrimination contribute, along with reflective thinking, to the refinement of taste. The freedom and responsibility of the learner, which has been emphasized in the three previous approaches, seems accentuated in esthetic experience. The teacher may provide contacts with beautiful objects and opportunities for expression in the several artistic fields, but the learner must be granted much freedom to feel his own appreciations and to make his own art objects. This, of course, is in sharp contrast with dictator-

ships wherein the "correct" art forms have been prescribed by edict Furthermore, the ultimate results cannot be verified by objective tests as can be done in many scientific and other reflective-thinking problems Evidently, the relations of the teacher and the learner take peculiarly subtle forms in the development of esthetic taste.

Emotional Stability

Emotional stability as an aim of development and education is so fundamental that a consideration of it as a special approach to learning might seem unnecessary or even misleading The emotional conditions of the learner are important in every act of learning, and the teacher needs to have the emotional aspects constantly in view. Nevertheless, a separate consideration of the emotional-stability approach is justified by the extensive contributions of modern psychology to this aspect of behavior and by the complex relations that exist between emotional conditions and intellectual attainments. Emotional stability implies an effective organization of the personality so that one does not "go to pieces" even in a critical emergency. When the emotionally stable person encounters an obstacle or meets a hard problem, he works with it persistently using his motor abilities fully, surveying the situation in search of insight, thinking over suggestions and, where possible, checking them scientifically The emotionally unstable person, on the other hand, may flee from the situation, he may fly into a temper tantrum or into a paroxysm of fear, he may blame others for his failure, or he may adopt a course of action that is ruinous to himself and his associates. Between these extremes are various degrees of stability or instability which promote or reduce effective effort, happiness, and social organization. One of the major difficulties in the emotional area is that the maladjusted person often feels that his action is appropriate

or rational, when, in fact, it may be so irrational that it leads toward neurotic or even psychotic behavior Since twisted thinking enters into the disruption of emotional stability, the latter has been placed late in the sequence *after* the discussion of reflective thinking, from which it can scarcely be divorced Although conditioning in infancy and later may have profound effects upon emotional stability, the latter approach involves much more complex considerations than the former Based upon human motives, or needs, emotional stability may be considered an outcome of healthy activities in which motor skill is attained through retrial, insight occurs through visual survey, reflective thinking and scientific method are used, and esthetic taste is developed It is appropriate, therefore, to consider the integrated development of the emotionally mature and stable individual near the close of the sequence of approaches to learning.

Social Organization

Social organization approaches the problem of learning to work constructively with other persons and through appropriate organization to avoid undue friction This approach is related intimately to emotional stability, for the emotionally unstable person will cause friction in any group, while the character of the social organization in turn has profound effects upon personality. The purposes of social organization reach deeper than reflective thinking on social problems, for the attitudes and dispositions necessary are established largely, though by no means solely, through face-to-face contacts with other persons from early childhood. This approach to learning cannot be promoted without "thoughtfulness"; but it has emotional aspects suggested by words like "friendly" and "cooperative" The learner must go beyond experiencing the benefits of social organization, however, to learn how to form and conduct social organizations himself.

Thus the approach leads into such ultimate problems as the relation of competition to cooperation, the place of leadership and management in our complex modern society, and the relative value of dictatorship and democracy under present and probable future conditions Although all the other eight approaches to learning contribute more or less to social organization, the final approach in the sequence reaches beyond the limits mistakenly placed upon psychology, studies of development, and even sociology This social organization approach starts inquiry into the ethical and social aims that are keys to a clearer interpretation of the democratic way of life

In concluding this preliminary sketch of approaches to learning, let the student be warned once more against the assumption that nine approaches cover neatly all possible aspects of the learning process, or that they are mutually exclusive. Not every case of learning will fit neatly under a particular approach or even a combination of approaches. Approaches not mentioned here may be needed to explain certain instances of learning In practice these nine approaches will not be as distinct from each other as they may appear in analytical discussion of them Although the distinctions made between the different approaches are significant, the fundamental purpose is so to relate the various approaches to each other as to achieve a clearer understanding of the whole, complex, unitary process of education to the end that the learning-teaching processes appropriate for democracy may be improved.

XI

CONDITIONING

THE STUDENT of education who seeks a clear understanding of the learning process encounters today a diversity of psychological theories. In unravelling this tangle of hypotheses we may begin with *behaviorism* and its special method called *conditioning.* Certain behaviorists claim that this twentieth-century interpretation of behavior stands upon a firm scientific basis similar to that established in the nineteenth century for physics, chemistry, biology, geology, and astronomy Other adherents state that the advancement of behavioristic psychology is as sound as the experimental studies in animal biology and human physiology All behaviorists, however, voice a similar appeal to students "If you wish to continue your faith in and rigid adherence to modern scientific methods throughout a hard-headed, tough-minded investigation of human development, follow us into an account of learning by means of the conditioning of reflexes which is more adequate than that rendered by any psychologist who depends upon explanations involving such terms as 'consciousness,' 'psychic factor,' 'insight,' 'intellect,' or 'mind ' " [1]

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[1] See, for example, Peter Sandiford, *Foundations of Educational Psychology,* Longmans, Green and Co , New York, 1938

The Old Doctrine of Association

In order to appreciate the controversy among psychologists out of which behaviorism emerged in the second decade of the twentieth century, consider the diverse explanations offered for the process of "association " Many teachers would say learning is a process of associating two or more things, words, or ideas For example, in mathematics an eight-year-old associates the number thirty-five with seven fives, in social studies the navigator Magellan is associated geographically with the strait at the southern tip of South America and historically with the explorations of the sixteenth century, the student of Latin associates *amō* with the verb love— present tense, first person, singular number, while Sir Isaac Newton is said to have associated the fall of an apple with the movement of the moon around the earth. Since using the word "association" does not actually explain these different learning activities nor describe them in any specific way, diverse theories have been elaborated by different psychologists, such as reflective thinking by John Dewey, patterned organization by the Gestaltists, or conditioning by the behaviorists Each theory attempts to get back of "association" and "learning" to an accurate description of the processes underlying the educational result, but each theory uses different terms and emphasizes different aspects. Continuing "association" as our illustration, we turn then to consider a few steps in the long historical background of behaviorism, which show how "conditioning" came forth as a reaction against explanations that the behaviorists consider less scientific.

Going back to ancient times, we find Aristotle organizing, clarifying, and extending the knowledge available in the Greek world of the fourth century B C., and among his many achievements stating certain laws of association, which survived without effective criticism until the twentieth century.

Aristotle set forth four causes or laws of association (1) sequence in time, (2) closeness in space, (3) similarity, (4) contrast We present modern illustrations of each (1) the pupil hears the name "Atlantic" followed immediately by the word "Ocean," forming an association by the time law, (2) the pupil may daily see his geography teacher standing close to a large globe of the earth which she uses, so when a globe is seen elsewhere this teacher may be "associated" according to the law of space, (3) the face, manner, or speech of the geography teacher may remind the pupil of a like characteristic in his aunt, by the law of similarity, (4) finally, the smile of the geography teacher may remind the pupil of a person who has been cross to him, "because she is so different," according to the law of contrast The student of today often accepts these four laws without criticism, although he may notice that the first two—time and space—refer to *objective conditions* observable outside the learner, while the latter pair—similarity and contrast—depend upon the *subjective* or more complex "mental" *activities of the learner* independent of nearness in either time or space. This distinction between the objective and subjective did not disturb the great scholastic thinkers of the Middle Ages For example, Thomas Aquinas, an Italian Dominican monk, while teaching in the thirteenth century at Cologne, Paris, Bologna, Rome, and Naples, set up an extensive and influential system of philosophy using many of Aristotle's methods and conceptions. In contrast, the behaviorists of our day have found in the subjective-objective distinction a basis for criticism of ancient and medieval conceptions.

The "Law of Parsimony"

A principle of scientific thinking which contributed to the behaviorist's rejection of subjective experience and the conscious mind, was enunciated as early as the fourteenth

century by another Churchman, the English Franciscan, William of Ockham In Latin, the language of the Church and of medieval culture, he gave us a short sentence that came in modern times to be called by scientists throughout the world, "Ockham's Razor": *Entia non multiplicanda praeter necessitatem*, that is, "Entities must not be increased beyond necessity " Ockham meant that "things" should not be assumed to exist as realities back of words used in philosophical explanations Today the behaviorist would apply this principle to the terms "mind" and "consciousness," asserting that no such "things" exist and furthermore no such words need be used, they should be cut off with Ockham's Razor. Another name for this principle is "Law of Parsimony " The scientist would have us be parsimonious in our explanations—using no more than necessary. Although William of Ockham in the century following the widely revered Thomas Aquinas did not contemplate any such criticism of the latter, his Razor became a handy tool for the skeptical scientist. Indeed, Ockham, from his studies at Oxford University and the University of Paris, came to conclusions that led to his imprisonment for protests against papal despotism and for his insistence upon a more nearly democratic control by a council of the whole Church, having even hinted that women might vote because they had souls. Thus acute thinking and democracy appear to have been related even in the fourteenth century.

More than five centuries later, at the beginning of the twentieth century, another Englishman, Lloyd Morgan, reformulated the *law of parsimony* for psychologists by stating that an action should not be interpreted as the outcome of a higher psychological development, if it can be interpreted as the outcome of one that stands lower in the psychological scale. Using this interpretation of the principle of parsimony, the behaviorist considers "consciousness" and "mind" unnecessarily high in the scale, so he seeks to interpret all behavior,

as we shall see, on the lower plane of physiological condi-
tioning Preferring the lower or simpler explanations of
association, the scientific behaviorist cuts off Aristotle's "sim-
ilarity" and "contrast" leaving only the objective conditions
of nearness in time and space. These latter are combined
into the *law of contiguity*—law of nearness—and the claim is
made, in accordance with Ockham's principle, that associa-
tion is adequately explained in simple terms. In contrast,
Aristotle, Thomas Aquinas, and other thinkers of ancient,
medieval, and modern times have employed such distinctions
as those between subjective and objective, mental and physi-
cal, mind and body, attempting to reconcile the two kinds of
terms in their explanations of events and experiences Every
student must assume responsibility for facing the issue of
accepting or rejecting the behaviorist's drastic solution of the
perennially troublesome mind-body problem, while, at the
same time, he rejects any theory that separates mind and
body as though they were independent entities.

Beginnings of Behaviorism

Meanwhile the behaviorist adds to his parsimonious prin-
ciple, selected from the contributions of medieval philoso-
phy, certain recent physiological discoveries of the twentieth
century to strengthen the scientific basis of his theory of con-
ditioning. Thus the immediate forerunners of the American
behaviorists were two Russian physiologists—Ivan P. Pavlov
of St. Petersburg (now Leningrad) and Vladimir M. Bekhterev
of Moscow. Pavlov and Bekhterev working independently
carried the neurological studies of their French and German
contemporaries into applications that led to the statement of
relatively simple theories The attention of scientists through-
out the world was called to the experiments of Pavlov in
1904 when he was awarded the Nobel prize in medicine, fol-
lowed later by the translation of his writings from the Rus-

sian Pavlov worked largely on conditioning the salivary reflex in dogs, while Bekhterev produced what he called "association reflexes" in the muscular movements of human beings, preferring to designate his science as "reflexology" rather than "psychology," a term derived from *psyche,* meaning mind or soul

Pavlov's experiments with dogs will illustrate the biological basis upon which the behaviorists have constructed their theory of learning or association Pavlov set out to "teach" a dog to produce saliva upon the ringing of a certain bell First, a fistula made in the dog's cheek and the attachment of appropriate apparatus made it possible to measure the amount of saliva produced The results may be diagramed as follows, S representing "stimulus" and R representing "response"

S_1 (bell rung)   ⟶ R_1 (movements of body, such as pricking up ears, no salivation) An original or unlearned reflex reponse

S_2 (meat fed)   ⟶ R_2 (salivation) An unlearned reflex

$S_1 + S_2$ (bell rung just before or simultaneous with meat feeding)   ⟶ $R_1 + R_2$ (movements and salivation both occur)

Combination of S_1 and S_2 is repeated a number of times, resulting in a measurable amount of saliva R_2

S_1 (bell rung alone)   ⟶ R_2 (salivation) learned or conditioned reflex response

The principle of conditioning drawn from such experiments may be stated thus A stimulus, which was originally indifferent and did not evoke a specified response, is made to

arouse that response if it is presented repeatedly at approximately the same time as another stimulus which originally does produce the specified response This statement may then be referred to the Law of Contiguity (in time) Association in this case appears to be established according to the simple principle of continguity and can be stated in full accord with the law of parsimony.[2]

Learning as Conditioning

In 1912 John B. Watson, an American psychologist at Johns Hopkins University, promulgated a theory of learning, which he called "behaviorism," based upon his own studies as well as the Russian "reflexology." According to this theory all human learning can be explained by the conditioning of unlearned reflexes Our problem is to consider the contributions this approach to learning has made to the understanding of human development and to note certain limitations inherent in this simple explanation, which depends upon mere contiguity, and in its application by the method of conditioning

Behaviorism made a major contribution to the study of human development by demonstrating that the infant, who can neither understand nor use language in the ordinary sense, nevertheless, learns through conditioning without his being aware of his own learning. This conditioning may occur through a planned experiment in which, for example, a bell is rung when a child is offered food, or in which a bandage is put over the eyes just before food is given. In both cases after the two stimuli—bell or bandage, and food —have been presented contiguously, the child will react to the ringing bell or bandage stimulus alone by the salivation

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[2] As an original source, see Ivan P Pavlov, *Conditioned Reflexes*, (translated by G. V. Anrep), Oxford University Press, New York, 1927

reflex, just as did Pavlov's dogs, without food being given
Also the sound of a metronome preceding and continuous
with an electric shock on the hand becomes a conditioned
stimulus for withdrawal of the hand in infants as well as
adults in accordance with Bekhterev's experiments in "re-
flexology " In general, behaviorists have demonstrated that
conditioning by contiguity produces certain forms of learn-
ing from infancy through adulthood [3]

More light was thrown on human development, however,
when Watson and other behaviorists pointed out that much
conditioning occurs in the home and elsewhere without any
planning of experiments If contiguity of stimuli occurs re-
peatedly, then conditioning results—even when no one is
aware of the process Frequently, conditioning of infants in
the home depends merely upon the repetition of two stimuli
contiguously as a phase of the household routine. For ex-
ample, an infant who is fed from a bottle may be stimulated
several times each day by certain noises that occur in the
preparation of the bottle of milk. Consequently, without
the mother being aware of the fact, she is conditioning her
baby to swallowing movements by milk-bottle noises as defi-
nitely as Pavlov and Watson, using bells conditioned dogs
and infants, respectively, in their laboratories In similar ways
through customary routines involving sequences frequently
repeated, infants throughout the world are being condi-
tioned whether in a primitive tribe or in a cosmopolitan
metropolis, and have been so conditioned since the cave men
and women began to introduce a degree of order into family
life. The mother who understands this process may increase
the precision of the routine and multiply the conditioning
stimuli in such a matter as toilet training for the bowel-

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[3] See, for example, Norman L Munn, *Psychological Development*, Hough-
ton Mifflin Co , Boston, 1938, pp 225 *ff*

movement response Infants who cannot yet be "told what to do" can be conditioned to specific forms of behavior [4]

Conditioning of Emotions

As a consequence of the new belief that infant behavior was being formed constantly through conditioning, the attributing of behavior to human heredity underwent substantial reinterpretation. Many of the emotional and social characteristics of children two years of age, or even younger, which had been considered as inherited traits were now explained by behaviorists as due to conditioning Watson attacked the problem of children's emotions by testing young infants with stimuli to which they were supposed to respond by inherited constitution. For example, he found that in early infancy no fear was shown of the dark, of animals including snakes and large wild animals in a zoo, or of strange people He did find that loud noises, pain, and sudden loss of support were followed by such responses as catching the breath, clutching with the hands, puckering the lips, and crying, which he called the "fear-reaction." Watson concluded that all other fears—especially unreasonable ones—whether of children or adults were due to conditioning through the accidental contiguity of an original effective stimulus, such as a loud noise, with the conditioned stimulus of the dark or the snake. By similar experiments Watson reduced other writers' long lists of "original emotions" to fear, anger, and love. He found the principal original stimulus for anger to be the restriction of movement of arms and legs, while love response appeared to be produced in infants through the stroking of the skin, tickling, patting, and rocking Thus the child's love of his mother, from the behavior-

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[4] John B Watson, *Psychological Care of Infant and Child*, W W Norton & Co, New York, 1928, also by the same author, *Behaviorism*, revised edition, W W Norton & Co, New York, 1930, *Psychology from the Standpoint of a Behaviorist*, third edition, J B. Lippincott Co, Philadelphia, 1929

ist's viewpoint, became merely a conditioned response based upon the presence of the mother while she cuddled her child The general conclusion followed that the emotional attitudes of a child or adult are dependent in very large measure upon environmental conditioning. (See Chapter IV)

Thinking Eliminated

In any case of conditioning the behaviorist usually warns the student not to misinterpret the results by assuming any *thinking* upon the part of the learner. According to behaviorists, the dog that hears a bell and the child who has a bandage put over his eyes both produce saliva directly without the mediation of any thinking process. The dog does not say to himself, "There goes the bell, now my meat will come"; nor does the child say, "They are putting on the bandage, and in a few seconds they will put a chocolate in my mouth." The behaviorists deny any such thinking as a *necessary* part of the process. Proof of this direct physiological connection between the stimulus and the response, unmediated by thinking, is furnished by Cason's experiments with the pupillary reflex of the eye.[5] The decreasing of light intensity resulting, as was to be expected, in dilation of the pupil, was accompanied by the simultaneous ringing of a bell, and eventually the ringing of the bell alone produced dilation. By reversing the process with other adults, the ringing bell alone became a sufficient stimulus to produce contraction of the pupil. Since pupillary dilation and contraction are involuntary responses beyond control through thinking by the person who is being conditioned, it is assumed that all conditioning processes operate in a similar way. Thus conditioning occurs as a direct physiological process without the learner being aware of the change which

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[5] Hulsey Cason, "The Conditioned Pupillary Reaction," *Journal of Experimental Psychology*, vol 5, 1922, pp 108-146.

is taking place in his behavior This lack of awareness may make the learner an unsuspecting victim of choices made by others, conditioning may make slaves of us all

Neural Changes in Conditioning

While the neural changes that occur during conditioning have not been determined, a few facts may aid our understanding of this direct physiological process. The original reflexes, such as salivation and pupillary, are said to occur by means of a relatively simple reflex arc leading from the sense organ by a sensory nerve, through the relevant areas of the brain, and back to the gland or muscle by way of the appropriate nerve track. The conditioning of reflexes, however, presumably effects, in some manner as yet unknown, a connection of several brain areas which were unconnected prior to the conditioning When two stimuli, such as "taste of meat" and "ringing of bell" occur in contiguity, they both enter the brain at approximately the same time and are thus said to become connected physiologically

Likewise, the "loud noise" stimulus and "furry object" stimulus may become connected with each other and, thereby, with those parts of the central and autonomic nervous systems that carry the neural excitations which produce the "fear reaction" of moving away, crying, and visceral disturbance. (See p 298.) Thus the simple statement of "contiguity in time" may represent relatively complex changes occurring throughout large portions of the nervous system involving the brain cortex, as well as sense organs, glands, and muscles throughout the body. The complexity of the physiological processes involved, even in terms of the oversimplified reflex arc, comes closer to presenting a correct picture of some kinds of human learning than the over-parsimonious statement that all learning depends upon mere contiguity in time and space.

Unconditioning

Unconditioning is the term used to designate the process of eliminating a conditioned response. If in infancy or later a person has become enslaved by a conditioned response, he may be helped to escape through reversing the direct physiological reaction, one cannot merely "think" or "reason" himself out of conditioned affections, angers, or fears, although thinking and reasoning, with consequent insights, achieved under psychological guidance, may help The process of simple unconditioning, however, will not be effective if the individual's emotion, behavior, or attitude is deeply rooted, or if it is complexly interwoven in the pattern of his personality. One reason why simple unconditioning will not be effective is that many emotional expressions, feelings, and attitudes satisfy an important need in the individual, and, often quite unconsciously, he will not abandon that mode of satisfaction unless the need is satisfied in another manner. Simple unconditioning or reconditioning will not be the solution. For example, a child's dislike of school is not to be overcome by a superficial creation of "pleasantness", nor by bribery His dislike must be remedied through an understanding of the basic causes of his dissatisfaction, and the removal or correction of those, possibly, for example, lack of status among his peers or his teachers, cumulative failures in learning situations too difficult for his level of ability. Again, parents who have been accustomed to inflicting severe punishment upon a child do not win his love though a cessation of such punishment even when a bribe or reward is added, the change in treatment at the hands of the parents must be accompanied by the child's feeling secure and loved, if the child, in turn, is to develop a feeling of affection for the parents.

Let us assume, however, that the situation is one in which simple unconditioning might prove effective, for example,

the conditioning of a superficial fear in a child and then unconditioning to eliminate the fear.

S_1 (furry object such as white rat) $\longrightarrow$ R_1 (reaching, manipulation, and petting)

S_2 (loud sound) $\longrightarrow$ R_2 (movements away and whimpering, called "fear" reaction)
An unlearned response

$S_1 + S_2$ (loud sound produced simultaneously with presentation of furry object) $\longrightarrow$ R_2 (movements away or "fear" reaction)

Combined stimuli used repeatedly

S_1 (furry object) $\longrightarrow$ R_2 ("fear" reaction)
A conditioned response

In order to eliminate the child's conditioned fear of furry objects a stimulus leading to a pleasant response is introduced in the form of a tasty lunch while a furry object is brought into the room at a considerable distance from the child. The furry object is moved gradually a little closer to the child each day, but never close enough to disturb his eating   The process may be diagramed

S_3 (lunch) $\longrightarrow$ R_3 (eating with pleasure)

$S_3 + S_1$ (lunch and furry object are presented simultaneously, repeatedly, with the distance gradually decreased) $\longrightarrow$ $R_3 + R_1$ (eating with pleasure continues from day to day and eventually the child touches the furry object and pets

the white rat
with one hand
while he eats
his lunch with
the other)

S_1 (furry object)   ──➤ R_1 (reaching, manipula-
                                          tion, and petting)

The student will notice that the last stimulus-response
pair is the same as the pair at the beginning of the experi-
ment The child has been restored from his conditioned
fears and now approaches the white rat and other furry ob-
jects with interested manipulation and positive courage Un-
conditioning has liberated the child from enslavement to a
conditioned fear Since many unfortunate conditionings
occur in infancy or later either through unwise training or
through accidental contiguity of original fear stimuli, such
as loud sounds or removal of support, with specific objects,
parents and teachers may from time to time use effectively
the conditioning technique in its unconditioning form as a
remedy.

Value of Conditioning Process to the Teacher

Having granted recognition to the usefulness of condi-
tioning in infancy for the establishment of some healthy
psycho-physiological processes, such as sleeping, toilet, and
eating habits, and to the value of unconditioning of some,
not too deeply rooted unfavorable conditions throughout
life, can the teacher find any other benefits in the condition-
ing approach to learning? Yes, the teacher who understands
the process may at least guard against conditionings which
would produce in the pupil some of the causes for the dislike
of school. Since conditioning occurs through the medium of
the sense organs, let us suggest briefly the relation between
each aspect of sense experience and the attitude of a five-

year-old beginner toward school. A kindergarten teacher thinking of conditioning her pupils through the visual sense has a variety of attractive bright colors about the room While these may be in the form of pictures, the teacher herself distinguishes clearly between the meaning of the picture, which may produce intellectual interest, and the direct conditioning through color. Among other things, translucent cream-colored shades provide a soft, pleasant lighting during rest periods, and the teacher herself does not forget to wear a bit of bright color. On the auditory side, the teacher's own voice is a most important conditioning factor at every age level, while the shrill voices of over-stimulated children often need to be modulated for similar as well as additional reasons The kinesthetic sense organs through which the child feels the movements of his own body constitute another important avenue of favorable conditioning when he is given the freedom to move about that characterizes the truly modern kindergarten and school In the past, and too often today, schools have conditioned children to dislike their school by prohibiting movement The skillful teacher will safeguard the children against unfavorable conditioning and promote the favorable through the other senses as well olfactory, gustatory, pressure, pain, and equilibration Although the child's favorable attitude toward the school and his teacher should be supported in large measure by meeting basic needs and by intellectual and social interests derived from the higher approaches to learning, care should be used upon the conditioning level to avoid unfavorable effects and to promote favorable ones directly through the sense organs Throughout life, although conditioning becomes more difficult with increasing age, emotional conditioning can continue to be an effective factor in the individual's behavior.

Limits of Conditioning

The positive benefits of conditioning being established, the student needs to consider carefully the limitations and dangers inherent in this relatively simple and restricted approach to learning. In the first place, scientific analysis of conditioning requires that the term be used in its strictly limited and original sense of direct behavior changes produced by contiguity in which new stimuli or new responses are substituted for earlier ones without mediation of thought. Confusion concerning this form of learning is often produced by using the term "conditioned" in a loose way in accord with common speech In this broad sense of common speech, "conditioning factors" refer to *any* conditions that affect a person's behavior without reference to the psychological process involved. That is, a person's behavior is said to be conditioned by his motor skills, by the suggestions of his friends and by his social contacts. It is to be noted, however, that these factors in learning operate in a much more complex manner than the conditioning process indicates, as will be seen in subsequent chapters. One of the serious sources of confusion in psychology arises from the shifts in meaning that occur in terms such as "conditioning " Even behaviorists sometimes permit the term to cover psychological processes that are far removed from the parsimonious law of simple contiguity in time.

When we go back to the underlying propositions stated by the behaviorist, we find him starting with a few reflexes which he regards as innate, although they may not mature until some weeks after birth. Some of these have appeared in the experiments already described. salivation in lower animals and human beings upon the presentation of food, pupillary dilation or contraction with decrease or increase of light; withdrawal of limbs when stimulated by an electric shock; movement of the body and whimpering under stimu-

lus of loud sounds or withdrawal of support, pleasure re-
sponses to stroking of erogenous zones of the skin. The
behaviorist has demonstrated that he can *substitute* other
stimuli for the original unlearned ones, so that the sound of
a bell will produce salivation in one case, pupillary dilation
in another, pupillary contraction in a third, withdrawal of
limbs in a fourth, whimpering cries in a fifth, and pleas-
urable cooing in a sixth All this experimentation is interest-
ing, but the student may well ask, "Of what use is it? What is
the use of saliva when no food is present? Is cooing or
whimpering when bells are rung any advantage to the in-
fant?" When we remember that the behaviorist himself has
demonstrated that there are only relatively few original basic
reflexes in the behavior of infants, there appears to be almost
no value in *shifting* these responses to new, substitute, condi-
tioned stimuli. Even when the behaviorist adds what has
been called the law of associative shifting, in which he claims
to be able to shift any response of which the learner is capa-
ble to any stimulus to which he is sensitive, we have only
added the shifting of reflex responses to other inappropriate
stimuli The experimenter may enjoy this game of shifting,
but the victim gains no increase in ability thereby. The mod-
erate proponent of conditioning only claims, however, that
"The outstanding result of conditioning is the anticipation
of natural events which have been experienced before." [6]
After reading this statement, the student asks, at once, if
reading, spelling, arithmetic, chemistry, likes and dislikes,
etc. are "natural events" which are best taught and learned
by a mechanical conditioning process, a question he will be
in a better position to answer for himself after reflecting on
all the approaches to learning. At this point we add, never-
theless, that the cautious interpreter of conditioning experi-
ments finds that ". . . the principle of association or condi-

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[6] Edwin R Guthrie, *The Psychology of Learning,* Harper and Bros New
York, 1935, P 45

tioning *is not an explanation of any instance* of behavior It is merely a tool by which explanation is furthered A tool is not true or false, it is useful or useless " [7] This position, of course, any student of behavior will grant. It is the task of the educator, however, to know the extent of the tool's usefulness, to examine the tool in order to determine if it is appropriate for this, that, or the other educational purpose, and whether it can be used to develop individuals in ways considered optimal

The limitations of the behaviorist's conditioning process often go unrecognized because *new* forms of response appear *while* conditioning is going on. The infant develops motor skills in reaching, creeping, standing, and walking, he develops ability gradually to discriminate between diverse sounds, colors, forms, and so on. Now, these skills and discriminations are *new responses* for which conditioning supplies no adequate explanation. The conditioner may facilitate or hinder some of these discriminations and skills by connecting them with emotional pleasure or annoyance, but the over-parsimonious principle of "contiguity in time" is quite insufficient as an explanation of the complex processes involved in sensory perception of differences in form, color, and tone, or in the coordination of the muscles and sense organs in motor skill.[8] Conditioning accounts for very little in the complex processes of motor and intellectual learning that occur during the period of infancy and the preschool years. The limited number of reflexes and their relatively restricted part in human learning indicate the minor place of conditioning when taken as the only method of learning

After it has been demonstrated that more complex approaches to learning are required to develop a vast number of new activities and responses, the behaviorist may still in-

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[7] Guthrie, *op cit*, p 232 Italics are his

[8] These developmental processes have been traced briefly in Chapter II, and the learning of skill will be clarified further in Chapter XIV

sist that some value remains in the possibility of substituting other stimuli, through conditioning, for those stimuli that belong with the new activities and responses. This claim must be faced and eventually we must decide whether or not higher approaches to learning may be used more or less effectively than conditioning in making these shifts.

The conditioning approach to learning is limited also by its unreliability in regard to permanence and spread. The teacher who uses the conditioning process cannot tell how long the conditioned response will last. In some cases fading has occurred gradually, in others the response has been lost through sudden shock, in still others the response has remained in spite of attempts to eliminate it through unconditioning after it had been recognized as undesirable In the higher approaches to learning, such as retrial for motor skill, insight through visual survey, and reflective thinking, learning is more reliable in the sense that the teacher and learner have a greater degree of control over its maintenance, modification, and elimination. A second aspect of the unreliability of conditioning might be designated as its crude spread to similar objects and events. The child who is conditioned to fear a white rat comes to fear a variety of furry things— from live dogs to stuffed animals and dusting mops. Conditioning in favor of or against a blue baby quilt may in some instances unbalance esthetic discrimination for color In other words, conditioning may make a person the slave of his sense organs and endocrine glands for an indefinite period over an indefinite area. While it is true that it may be desirable or even necessary to condition young children against some dangers, such as sharp knives, rattlesnakes, and high places from which they might fall, it would be sounder and wiser practice so to arrange conditions, where possible, that such dangers are reduced to a minimum. Then, at some later time, when the child's perceptions and insights are mature enough, the avoidance of dangers can be placed on a rational

basis And it has already been indicated that certain positive conditionings in infancy and childhood are essential for the child's well-being and development of activity. At the same time, in so far as possible, the wise parent and teacher will avoid binding the personality of the child unnecessarily through conditioning techniques that are so unreliable.

Conditioning as a Way of Learning in a Democracy

Conditioning appears to be an approach to learning especially appropriate for a dictatorial regime. Children, youths, and even adults can be taught without being aware that their behavior is being modified to fit the demands of a group of leaders or coercers. All their skills, perceptions, and intellectual abilities can be bound emotionally to narrow ends set up by the political party in control. Even words, which are supposed to be tools of thought, become emotionalized sounds that lead into behavior determined and demanded by the conditioner E R. Guthrie, a leading writer on conditioning as learning, has this to say: "What does the principle of conditioning mean in the form of practical advice? Largely this, that if we wish to have any act of our own or of another under our control, so that we can elicit it on occasion, we must go through the following procedure· [the conditioning procedure] " [9] It appears then, that we have an instrument for the development of automatons. Thus a whole nation may be kept in the infancy stage, accepting its routine of labor, reproduction, prejudice, hate, and war as uncritically as a baby follows its routine of feeding, sleep, and elimination. The behaviorist unwittingly has improved a technique of instruction that can be used to keep human development at a low intellectual level

Can behaviorism and its method of conditioning make any

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[9] Guthrie, *op. cit*, p. 45

contribution to the democratic way of life? In the first place, a clear understanding of the possibilities and dangers of conditioning, as well as of its usefulness, has value to those who would employ the technique and who also would choose to develop in children and youths more intelligent forms of learning Parents and teachers, for example, perhaps without knowing it, have conditioned children's motivations and conduct through punishments and rewards of various kinds Though the conditioning process is perhaps necessary in some instances, these adults have established in the children an irrational basis for behavior. Now, at any rate we know what the process is, how to use or avoid it, and what its effects, desirable and undesirable, may be. In addition some of the scientific facts that behaviorism has revealed contribute to a sounder understanding of human development than was the case heretofore. Behaviorists have demonstrated that many forms of activity which have in the past been considered inherited characteristics are actually learned, so to a substantial degree, human nature has been freed from certain previously alleged hereditary bonds. Though certainly not entirely adequate, some rather more exact methods of child care to promote physical and emotional health have been provided through conditioning techniques; among these being, as already stated, the unconditioning process to correct some undesirable forms of behavior that might otherwise handicap their victims for an indefinite period. Finally, in so far as some desirable habits have their bases in conditioning, they promote efficient routinized action It is true that efficient and desirable habits enable a person to profit from earlier situations and behavior by providing him with ready forms of action to be used, where appropriate, in meeting new situations as they arise. But too often habits and attitudes signify a mind that is inert and, therefore, a handicap to development. Habits can be of greatest service, however, so long as they are subject to revision and not irrevo-

cably rigid Conditioning thus has both negative and positive uses in promoting the democratic form of living and acting

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XII

PSEUDO-MECHANICAL REPETITION

THE TERM "pseudo-mechanical repetition" refers here to that long standing approach to learning commonly known as "rote memorization." A striking example of memorization by repetition revealing its retarding effects is found in the ancient Chinese education which became definitely established upon the writings of Confucius in the fifth century B C Confucius credited his books, which soon became sacred classics, to Chinese traditions many of which had been repeated for twenty centuries before he himself collected and recorded them These classics were memorized by all the intellectual and political leaders of China right up to the beginning of the twentieth century During this whole period, political appointment was dependent upon passing written examinations in the classics The method of study was one of oral repetition in loud-shouting schools in order that the pupils should learn to repeat the verbal symbols in the books in the fixed order and at the maximum speed. The significant general purpose of the old Chinese education was the retention of viewpoints and practices of the ancients accompanied by the well-known respect for ancestors

Such a method of learning is particularly adapted to retarding the intellectual and social advancement of a people In China, a gigantic demonstration covering one-tenth of the

habitable globe, including one-fifth of the human race, and extending through more than two thousand years, shows clearly the static conditions pseudo-mechanical repetition can maintain. Similar conditions occurred in India where sacred books, such as the Vedas, were memorized, while throughout the Western World during ancient times in Greece and Rome, during the medieval period in the Church schools, and during the nineteenth century in the secular public schools of the United States the practice of rote memorization absorbed an excessive amount of time in the lives of children and youths to the exclusion of the higher approaches to learning. The twentieth century likewise has its schools and educational systems which are noteworthy principally for their reverence and memorization of the intellectual products of past ages, notably the "leading" schools of England and the secondary and higher institutions of France. It is not irrelevant to ask whether the static conditions and remote interests promoted by these English and French schools are not to an appreciable degree responsible for the disintegration of one of these nations and the near-collapse of the other.

Wherever a static or autocratic society survives for a long period, there rote memorization thrives. Pseudo-mechanical repetition has a long dreary record of binding human beings to the past, failing to foster individual abilities, and keeping individuality from emerging. Its discouraging history constitutes a substantial reason for studying the method of memorization in order that its slavish adoption may be avoided and that its necessary use may be safeguarded in the interest of human development.

Similarities to Conditioning

Before considering the peculiar characteristics of pseudo-mechanical repetition, we may note certain similarities to

the approach through conditioning Like conditioning, pseudo-mechanical learning may be explained upon the simple principle of contiguity in time, thus adhering to the law of parsimony in scientific fashion. Learning is assumed to be a mere matter of mechanical sequence reinforced by repetition, and perhaps by intensity of sound in the "loud school." Before the discussion is concluded, however, the student will meet detailed criticisms of this very simple explanation. In view of these criticisms the prefix "pseudo" is used to indicate that rote memorization is falsely, or *erroneously*, called mechanical Although the obedient pupil who learns to spell a word or repeat a verse appears to react with mere mechanical sequence like a machine, he actually produces a vitalized organization of his own with emphases, skips, groupings, and other evidences of life.

The behaviorist might claim that rote memorization was merely one form of conditioning. A distinction is drawn in our discussion, first, because the learner is clearly *aware* that he is being taught whenever he is asked to memorize, for instance, a definition or the spelling of a word, whereas in conditioning the learner may be quite unaware that his behavior is being modified by factors in the environment. The fact that a goal is set before the learner and that he is instructed to follow a certain process—repetition—takes the learner far beyond the method of conditioning in which he is commonly unaware of both process and goal. In our discussion we also limit the term pseudo-mechanical repetition to *verbal* repetition, thus excluding non-verbal motor acts which are treated under "retrial for motor skill"—a very different process.

The teacher needs to recognize, of course, that in some respects conditioning is also occurring during the process of pseudo-mechanical repetition. Pupils frequently have been conditioned emotionally to dislike the school by being required to sit still and memorize uninteresting and even

meaningless materials In addition, the words memorized
often take on an emotional quality, such as peculiar respect
and affection for statements coming from "sacred" books
under the influence of reverence given by the adults whom
the child has learned to love and respect. The law of associa-
tive shifting continually acts to reinforce the bondage of the
individual to the behavior suggested by the words set before
him for memorization Thus, although we make a distinction
between the verbal learning of which the child is fully aware
and the emotional conditioning of which he is not so aware,
we recognize that these two approaches to learning operate
frequently in effective conjunction to the detriment of indi-
vidual intelligence.

Early Experiments by Ebbinghaus

Although the processes of rote memorization have been
employed perhaps ever since early man began to speak, we
have little evidence of the scientific study of verbal repetition
until the last quarter of the nineteenth century. Hermann
Ebbinghaus (1850-1909), German psychologist in the Uni-
versity of Bonn, devoted himself for years to the scientific
measurement of the memorization process. His work has
been considered notable as the first real attempt to apply
precise scientific method to the study of the "higher mental
processes." Today the student of education might question
whether the rote memorization of a series of nonsense syl-
lables, such as Ebbinghaus used, was a "higher mental proc-
ess", but in the 1880's the Americans as well as others who
attended the German universities to study psychology and
education, in their efforts to be precise and experimental,
often seemed more interested in minute mechanical details
and formal procedures than in fundamental problems of
human development; and the possible relationship of psy-
chology to democratic living was apparently quite remote

from their concerns. Although we may be inclined to discount the value of studies in the field of pseudo-mechanical repetition, every student recognizes that a considerable amount of exact mastery of subject-matter must occur, as, for example, in the spelling of English words in which pronunciation of a word often gives only a vague hint of the correct sequence of letters.

Ebbinghaus performed his long series of experiments upon himself; and since he was interested in the memory process as distinct from reasoning, he chose to use nonsense syllables that would be devoid of meaning. He prepared a large number of nonsense syllables consisting of two consonants with a connecting vowel—such as tev, ret, noc, gis, pud, hov—to use an English language adaptation. He then arranged these syllables by chance shuffling in series of various lengths and repeated them until he had memorized each series perfectly. Among his many findings, one practical conclusion was that it requires about ten times as much time and effort to memorize a series of nonsense syllables as it does a meaningful poem of equal length. Another experiment in the process, called by Ebbinghaus "overlearning," showed that after a series of nonsense syllables had been memorized to the point of one perfect repetition, he could reduce the time required to "relearn" the series twenty-four hours later if he repeated, or overlearned, it a certain number of times that first day. The table below shows some of his results:

Number of readings on the first day:	8	16	24	32	42	53	64
Percent saved in relearning the lists 24 hours later	8	15	23	32	45	54	64

In this experiment Ebbinghaus saved almost exactly one percent for each additional repetition made on the first day. It has not been established, however, that such a close functional relationship exists as a rule. (See Figure XIII)

Ebbinghaus's experiments on *forgetting* of nonsense syl-

lables are also notable. Here is one series in which forgetting was measured by the time necessary in *relearning* [1]

Interval between learning and relearning	Percentage of work saved (retention)	Percentage of loss due to forgetting
20 minutes	58	42
1 hour	44	56
9 hours	36	64
24 hours	34	66
2 days	28	72
6 days	25	75
31 days	21	79

Though there are individual differences in percentages of loss, results that show the learner losing a large fraction of the material in an hour and all but a very small fraction in a month are certainly discouraging to both pupils and teachers (See Figure XI) But the student of education should especially remember that these results were found with nonsense or practically meaningless materials What, on the other hand, occurs in the case of meaningful materials?

Results Found with Meaningful Materials

Experiments upon the memorizing of poems, for instance, show different rates of forgetting than do nonsense syllables A poem may have the advantages of both rhythm and meaning; but the requirement of exact repetition of the author's words keeps the measured forgetting from departing far from the *form* of the curve for nonsense syllables. (See Figure XII.) Magneff found, for example, a loss of about one-half from perfect memorization after three days in the case of poetry (as compared with the loss of more than half in one hour, in the case of nonsense syllables), and a retention of

[1] Hermann Ebbinghaus, *Uber das Gedachtnis*, Leipzig, 1885 English translation by H A Ruger and C E Bussenius, *Memory*, Teachers College, Columbia University, New York, 1913

about two-fifths at the end of a month (as compared with only one-fifth in the case of nonsense syllables) [2]

Materials studied in school and college show different percentages of retention, but as in the case of poetry the rate and amount of loss are less than for nonsense syllables. The fol-
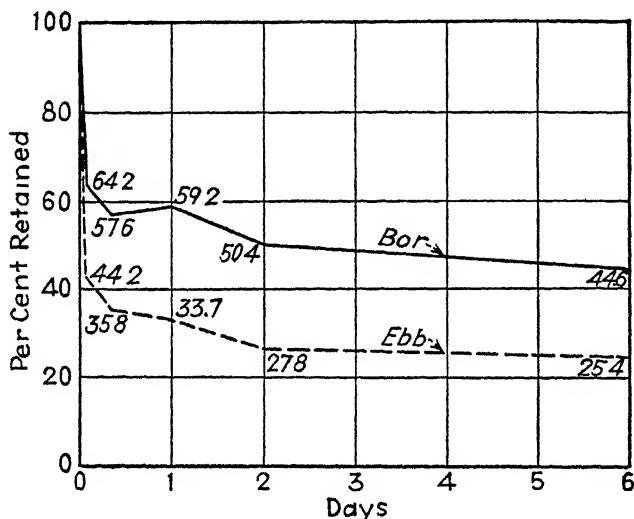
FIGURE XI —Curves of Retention of Lists of Nonsense Syllables
The curves represent results of two separate experiments
Ebbinghaus (Ebb) obtained his results with one subject about
40 years of age Boreas (Bor) plotted the results for 20 students
(From Robert S Woodworth, *Experimental Psychology*, Henry
Holt and Co, 1938, p. 53)

lowing data are in point Seventh and eighth grade pupils, after an interval of a year, retained twenty-five percent of what they had acquired in American history Another group of pupils retained approximately one-third of their knowledge of elementary algebra after the lapse of a year during which they received no instruction in mathematics. Trow, using meaningful materials with several graduate students as

[2] Cited in Daniel Starch, *Educational Psychology*, The Macmillan Co, New York, 1927, p. 171.

subjects, found that when seven practice periods were distributed at twenty-four hour intervals, about eighty percent of the "ideas" were recalled after an interval of fifteen weeks.
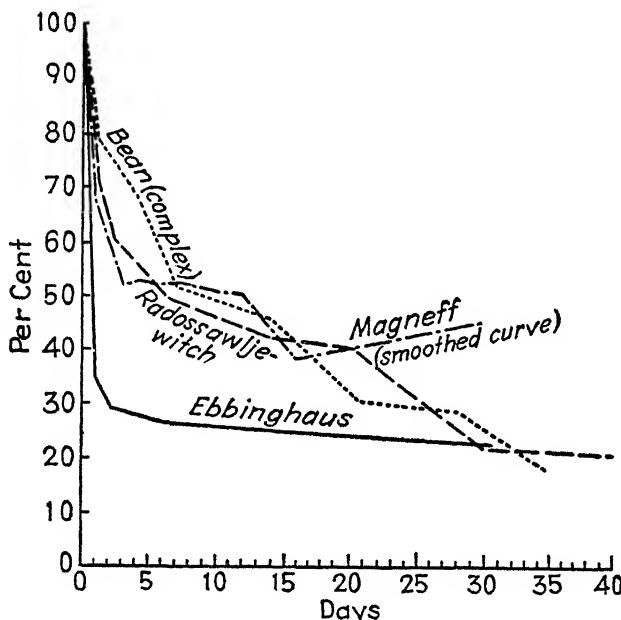
FIGURE XII —Curves of Forgetting Ebbinghaus and Radossawl-jewitch used nonsense syllables, Bean used letters, Magneff used poetry (From Daniel Starch, Educational psychology, 1927 By permission of The Macmillan Co) It is to be noted that in all four curves the initial loss is very rapid but that retention of meaningful poetry after about 30 days is still approximately twice that of the other materials Whereas Figure XI covers only 6 days, this Figure covers 40 days

Thus meaningful materials plus an improved method of repetition—namely distribution—enabled the subjects to *retain* about four-fifths of the substance, whereas with meaningless materials acquired by massed repetitions about four-fifths were *lost* in a few days [3]

[3] See S J Bassett, "Retention of American History in the Junior High School," *Journal of Educational Research*, 1928, vol 18, pp 195-202, E T

Meaningful materials are not only better retained but they are more easily acquired. The efficiency, however, with which materials are acquired is influenced also by the *methods* employed in making the repetitions, thus again emphasizing the *pseudo*-mechanical character of repetition The superiority of distributed practice over massed practice has already been mentioned. There are also other methods which influence the value of repetitions. It is better, within the capacity of the individual, to learn by wholes than to break up materials into small parts and then have to put them together again. It is also desirable that the learner have an "active attitude", that is, it is desirable that one *do* something about learning for example, self-testing, articulating, looking for rhythms and combinations, discovering patterns and relationships In short, memorization and learning are not achieved merely through a kind of "mental massaging " And first impressions should be accurate Furthermore, a number of "subjective factors" are also operative, such as intent or purpose, feelings toward the material, and interests.

The Curve of Forgetting

It appears from the experiments by Ebbinghaus and many others following him that the *general form* of the curve of forgetting is much the same for various types of materials namely, rapid loss in very early phases, with a slowing down of the rate of loss, the amount of loss and duration of time being dependent upon the nature of the material and upon other factors contributing to its vividness and significance. It should be noted, though, that rate and extent of loss can

Layton, "Persistence in Learning Elementary Algebra," *Journal of Educational Psychology*, 1932, vol 23, pp. 46-55, William C Trow, "Recall versus Repetition in Learning of Rote and Meaningful Material," *American Journal of Psychology*, 1928, vol 40, pp 112-116

be considerably reduced by periodic practices, or relearning [4]

It is not to be assumed, however, that the Ebbinghaus type of curve applies to all learning and all activities. Learning by insight, as we shall see, does not conform Then, too, if we turn from exact repetition of verbal materials to motor skills, the student may well estimate from his own experience what percentages of loss occur in skills How much skill is lost in handwriting, typewriting, piano playing, basketball, or dancing in such periods of time as an hour, a week, or a month? It is well known that the loss is much less than in exact repetition of either meaningful or meaningless verbal statements. The reason why skills are well retained is that they become well organized patterns during the learning, and they are *overlearned,* that is, they are practiced, kept up for a long time after they have been developed to the level of an acceptable standard, and they are thus prevented from fading, with the result that even after a long period of disuse the skills can be rapidly restablished. By contrast, the materials acquired in the laboratory are used and measured over a very short space of time, fairly continuous practice over a reasonably long period being absent. (See Figure XIII for curves of forgetting when laboratory materials have been overlearned.)

The various results found in attempting to retain meaningless verbal material, rhythmic and meaningful poetry, organized muscular skills, and meaningful ideas suggest that the detailed experimental findings of Ebbinghaus in the 1880's must not be applied to all repetition nor to learning and activities which lie beyond the field of pseudo-mechanical repetition. In every approach to learning, there is some retention of what has been acquired, but the manner, the

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[4] For methods of memorizing, see Edmund S Conklin and Frank S Freeman, *Introductory Psychology for Students of Education,* Henry Holt & Co, New York, 1939, Chapter 8 For a brief summary of experiments, see Robert S Woodworth, *Experimental Psychology,* Henry Holt & Co, 1938, Chapters 3 and 4

rates of learning, and the relative amount of remembering and forgetting differ so greatly that the usefulness of repetition must be considered anew under each approach to learning.
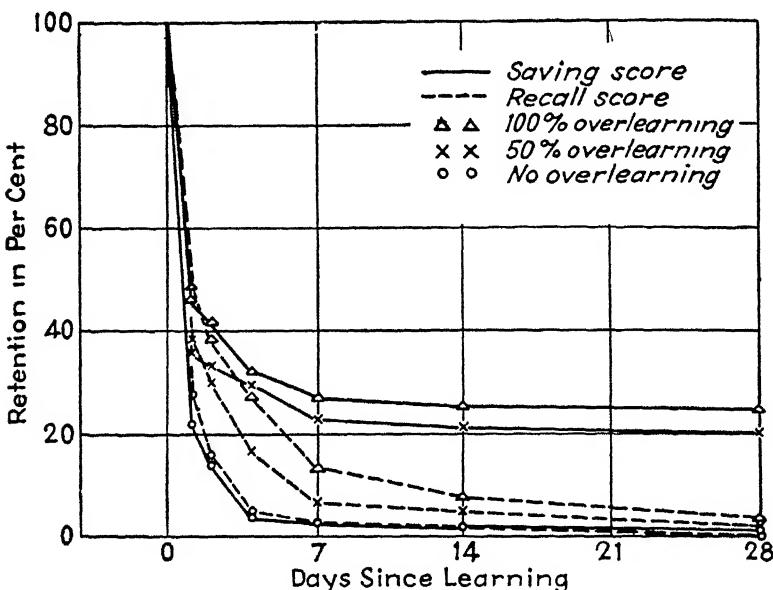
FIGURE XIII —Curves Showing Retention One set of curves (broken lines) show retention as measured by recall The other set (solid lines) show retention as measured by the number of presentations necessary to relearn the materials Lists of 12 monosyllabic nouns were used It is apparent that "overlearning" produces superior results 100% "overlearning" means that the number of *additional* repetitions was equal to the number necessary to acquire all the words in the list (From Robert S Woodworth, *Experimental Psychology*, Henry Holt and Co., New York, 1938, p. 57.)

Reminiscence

There is a notable exception to the curve of forgetting. It was found that in certain instances, instead of an immediate loss in retention there was an initial *rise* during several days after memorizing The curves of Figure XIV demonstrate

this phenomenon—improvement without practice—called
reminiscence, a phenomenon which must be regarded as a
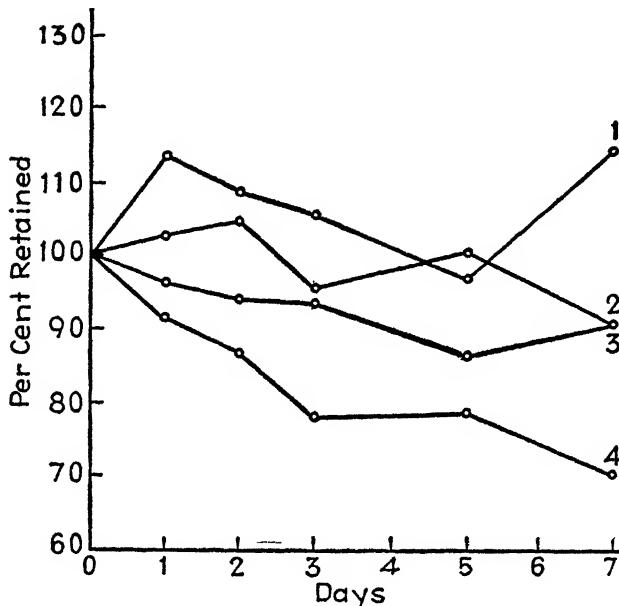
FIGURE XIV —Curve of Retention for Poetry Curves 1, 2, 3, and
4 are for age groups 9+, 12+, 16+, and 21+, respectively
(From Osborne Williams, "A Study of the Phenomenon of
Reminiscence," *Journal of Experimental Psychology,* vol 9,
1926, pp 368-387)

valid but special form of retention. In the experiments show-
ing this special form, meaningful materials were used [5] When
materials are meaningful they have a unity, organization,
and inherent sequence absent from or only artificially and
incompletely supplied to meaningless material. These char-
acteristics might be conditions of reminiscence But the

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[5] Philip B Ballard, *Oblivescence and Reminiscence,* British Journal of
Psychology, Monograph Supplement, vol 1, no 2, 1913, Osborne Williams,
"A Study of the Phenomenon of Reminiscence," *Journal of Experimental
Psychology,* vol 9, 1926, pp 368-387

most significant and clear factor in reminiscence is age, for the phenomenon seems to be limited to children, as revealed by the curves In one experiment, the maximum reproduction for six-year-old children was found after three days, for twelve-year-olds, after two days, for twenty-one-year-olds, immediately after study Reminiscence, though, is not found in all children, even of the younger age-groups; but it is found in a large enough percentage and in sufficient amounts to give the curves for younger children an initial upward trend.

An adequate explanation of reminiscence has not yet been developed. That, however, detracts nothing from the phenomenon's factual basis, and it does have several important implications It suggests that experiences and behavior tend to perseverate more strongly in children than in adults It furnishes additional evidence supporting the view that meaningful and well apprehended units, or wholes, will be better retained than the relatively meaningless. Finally, the phenomenon of reminiscence further weakens the hypothesis that learning is achieved just as a result of·repetitions and the neural "pathways" supposedly established thereby.

Repetition and the Brain-Path Theory

Psychologists and educators who studied the learning process came in the latter part of the nineteenth century to check their findings more definitely with those of physiologists who were examining the nervous system By the time William James, American psychologist and philosopher, published his *Principles of Psychology* in 1890, there had emerged from the work of English, German, and French physiologists a neurological theory which attempted to explain the effect of repetition in the learning process. In a chapter on "Habit," James set forth a "brain-path" theory of habit formation in which the repeated passage of a nerve-

current was assumed to establish the act being learned.[6] By the beginning of the twentieth century the brain-path theory of the psychologists, also called the neural-pathway hypothesis, apparently had the support of a number of facts and hypotheses advanced by the neurologists following experiments with lower organisms, such as frogs, and rechecked with studies of the human body (1) each nerve track is made up of many, separate, individual, elongated cells, called neurones, (2) neurones, especially the connecting neurones in the brain cortex, end in a number of branched fibers, (3) some kind of impulse or excitation passes along neurones and from one neurone to the next in a series leading from a sense organ to the brain and out again to a muscle or gland, (4) between each pair of neurones in a series there exists a very minute gap, called a synapse, (5) a neural impulse can move in only one direction across the synaptic gap, (6) a weak impulse sometimes ends at a synapse because the gap cannot be jumped, (7) resistance to the flow of impulses is greater at the synapses than in the neurones themselves From these neurological facts and hypotheses the psychological inference or hypothesis was drawn that learning consists in the reduction of synaptic resistance. And as a result of teachers' common observations that repetition promotes rote memorization, the further inference was drawn that repeated passage of a neural current over a certain synapse or series of synapses reduces the resistance at these synapses. Thus a neurological theory was offered in support of the approach to learning we designate as pseudo-mechanical repetition. But more; this theory was offered as the one explaining all forms of learning, for learning came to be regarded and defined merely as habit formation in terms of neural pathways.

A number of influential psychologists in the United States

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[6] William James, *Principles of Psychology*, Henry Holt & Co, New York, 1890, Chapter 4

spread this hypothetical interpretation through teacher-training institutions, calling it the "Law of Exercise" and emphasizing its "scientific basis" in terms of neurones and synapses. For example, in the 1921 edition of Woodworth's psychology, and in a number of subsequent text books, the student of education was presented with diagrams in which the end fibers of two neurones were shown coming closer together through growth stimulated by the passage of a neural current, so that the width of the gap, or synapse, was narrowed and the resistance reduced [7] Thus teachers were led to the conclusion that it was their clear duty to reduce synaptic resistance by requiring much repetition even though ordinary observation showed that the materials were rapidly forgotten, while the learner was emotionally discouraged by the monotony and his intellectual development was retarded by the routine.

Furthermore, the brain-path theory seemed to require exact repetition, since exactly the same series of neurones and synapses must be followed on each occasion for the maximum reduction of resistance. Every objection made by intelligent parents and teachers to this stultifying and narrowing process of rote memorization of textbooks or fixed patterns of handwriting, drawing, or gymnastics was met by the brain-path hypothesis which, for many schoolmen, had become to all intents and purposes an absolute law. Thus a tentative scientific hypothesis was used (and misused) in the twentieth century to support a method of teaching that had been retarding human development for many centuries.

Experiments on the Brain-Path Theory

Fortunately for education, some neurologists recognized more fully than most writers of psychologies the insecure

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[7] Robert S Woodworth, *Psychology, A Study of Mental Life,* Henry Holt & Co, 1921, p 415 In the 1940 revision of this text, the author has, it appears, modified his view in this respect

basis upon which the brain-path hypothesis rested. No neu-
rologist had been able actually to observe, in the living brain,
changes in the width of synaptic gaps, nor had anyone been
able to locate a single brain-path corresponding to a partic-
ular learned act or habit in any animal's cortex, not to men-
tion "spelling-word paths" or "definition paths" in the
cortex of a child Facing this lack of evidence, in the United
States K S Lashley, among others, pursued his neurological
studies with the purpose of tracing conditioned-reflex arcs
through the cortex At the beginning of his experiments,
Lashley says, he was biased in favor of an explanation of
learning through habit formation conceived as a succession
of movements and neural impulses. In other words, Lashley
was trying in the 1920's to locate brain-paths definitely, al-
though in the end his *Brain Mechanisms and Intelligence,*
published in 1929, comes to conclusions that clash sharply
with the brain-path theory and thereby help free the teacher
from bondage to pseudo-mechanical repetition as *the* ap-
proach to learning

In his experiments Lashley used rats because their brains
and nervous systems are similar in their functioning to those
of human beings His plan was to have the rat learn a par-
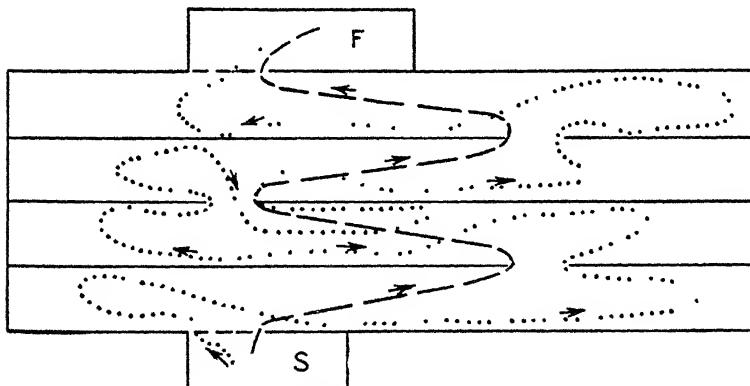
FIGURE XV —View of Maze, Looking Down S is starting point, F is finish

ticular action or form a definite habit on the assumption that this would produce a particular neurone series, or pathway, in the brain cortex of the rat, the pathway to be located by further experimental devices. Accordingly he taught the rats to run a maze, such as the one in Figure XV. The reader is looking down upon the top of the maze, S is the starting point where the rat is put into the maze box, F is the finish where food is placed as an incentive The dotted line represents a possible route used by the rat on the first trial, while the broken line represents the shortest route, which the rat learns to run, after a number of trials

When a rat had formed the habit of running a particular maze, Lashley performed a delicate operation of burning with an electric needle and thus destroying certain areas of the brain cortex. The diagram below (Figure XVI) repre-

Rat *A* : Lesion
8 Per Cent
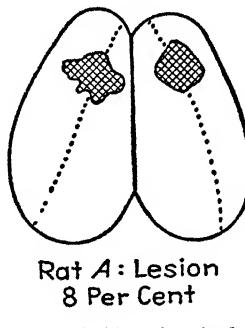
FIGURE XVI —The shaded area represents the amount and location of distruction in each hemisphere (From Karl S Lashley, *Brain Mechanisms and Intelligence,* University of Chicago Press, 1929)

sents the brain cortex as seen from above, the black spots being the portions destroyed, as determined by post-mortem studies. The amount of the cortex destroyed in this case is

approximately 8 percent of the total surface Similar portions
are chosen in the two halves of the brain

Lashley's plan was to locate the brain pattern correspond-
ing to the maze-running habit by destroying or cutting across
part of the path. If the neural pathway ran as indicated by
the dotted lines, then the habit would be destroyed in ac-
cordance with the brain path theory of learning When Rat
A recovered from the operation after a few weeks, as shown
by feeding and running about in a normal way, he was placed
again in the maze and succeeded in running through it al-
most as effectively as if no operation on his brain had oc-
curred Lashley concluded in these *early* cases that he had
merely missed the location of the pathway, so he repeated
with other rats, destroying other and larger areas of the
brain cortex.

The series below (Figure XVII Rats B, C, D,) represents
three of the diverse areas destroyed in the many experiments.

Note especially the attempt made in Rats C and D to cut
off all longitudinal and transverse brain-paths, respectively
The results of the maze-running trials after the recovery of
each rat were similar to those of previous cases. The reduc-
tion of ability to run the maze was slight, not corresponding
at all to the sharp decline in ability that the pathway hy-
pothesis would indicate, if a neural track had been cut off.
Thus Lashley was led to doubt the theory which he had ex-
pected to prove down to the hilt by locating the pathways
through cutting them off.

Lashley then began to destroy larger portions of the cortex
in an endeavor to discover a more adequate theory of brain
mechanisms. The diagrams below (Figure XVII: Rats E,
F, G) represent a few of these many attempts.

The results when these larger portions of the brain cortex
were destroyed became noticeable, but still the retardation
in running the maze did not correspond to the effect of cut-
ting a telephone wire as some of the textbook writers in

neurone psychology might have expected and have led their students to expect Instead, Lashley found that generally the retardation was roughly proportional to the *quantity* of the cortex destroyed, *not to its location* In some instances the correspondence was very close. For example, if

Rat *B*: Lesion
9 Per Cent

Rat *C*· Lesion
11 Per Cent

Rat *D*· Lesion
16 Per Cent

Rat *E*· Lesion
45 Per Cent

Rat *F*: Lesion
55 Per Cent

Rat *G*: Lesion
81 Per Cent
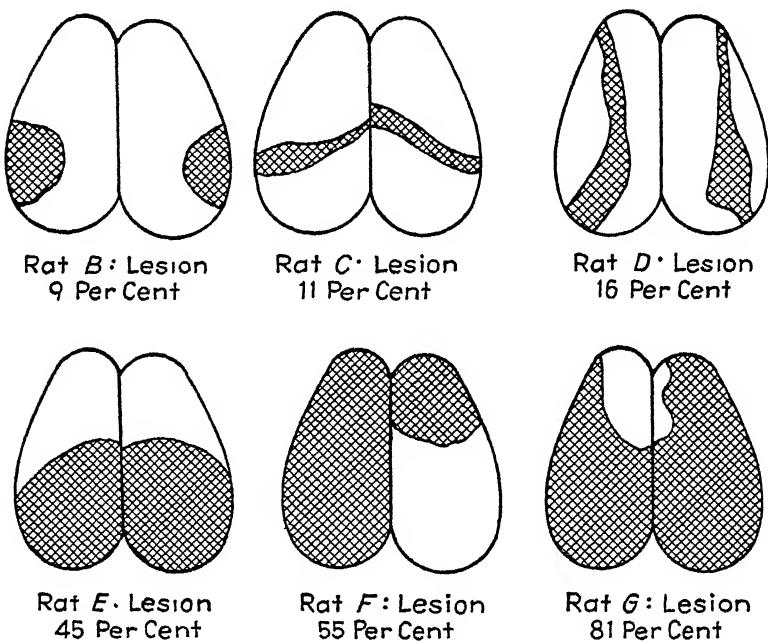
FIGURE XVII —The shaded area represents the amount and location of destruction in each hemisphere. (From Karl S Lashley, *op cit*)

about half the cortex was destroyed at one end of the brain in Rat E and half at the other end in Rat F, both rats would be only *half* as efficient as before. And the rat recovering from the greatest injury—Rat G with a lesion covering 81 percent of the cortex—was found to have only about one fifth of his normal efficiency in maze running.

From his many experiments and from the studies of brain injury in human beings Lashley draws a few conclusions

that are extremely significant as criticisms of the pathway hypothesis and of the inferences drawn from it concerning the necessity of exact repetition First, he infers from the studies that the learning process and the retention of habits is not dependent upon any finely localized structures in the brain cortex, such as the special pathways for various items learned, as implied by the brain-path theory. He goes further, saying that his results do not accord with hypotheses founded upon reduction in synaptic resistance, as assumed in the brain-path theory. Furthermore, the whole brain cortex appears to work as a functional unit, each part of the cortex contributing to the action being learned or reproduced [8] The maze-running habit appears to Lashley to have complexity characteristic of intelligent behavior To the extent that this is so, these conclusions can be generalized and applied to intelligent activities such as children ordinarily pursue at play and in schools where they are not held to rote memorization.

Educational Implications

The work of Lashley and others on brain mechanisms thus relieves teachers of the over-simple interpretations of the brain-path theory which encouraged repetition of a narrow kind. Neurologists cannot as yet tell us exactly how the brain works, but they have demonstrated that brain activity is a complex, unified function essential to learning. Instead of assuming that brain mechanisms determine teaching procedures directly, however, the present state of neurological evidence suggests that the teacher may use a variety of methods in any of which the learner's whole brain and person are active. Even so, as a matter of practical fact it is more important to know the *conditions* under which learning is facilitated or hindered than it is to know what cortical or

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[8] See also Shepherd I Franz, "The Neurology of Learning," Chapter 8 in *Comparative Psychology,* (F. A Moss, ed), Prentice-Hall, New York, 1934

other neural changes take place. Concerning the intended learner, it is highly desirable to know—in fact, essential— what are his degree of intellectual and physical maturity, his general and special abilities and capacities, his motives that might be effective in the situation, his health and energy level, his emotional status in the home as well as in the school and among his fellows It is likewise essential that the teacher know the appropriateness of the materials to the intended learner, and, too, whether or not the conditions of the learning situation—physical, esthetic, emotional—are conducive to learning Instead, then, of studying brains primarily, the teacher is returned to the study of children and youth playing and working in certain kinds of environments, motivated by certain needs, responding to various situations, and seeking certain ends.

The fact that repetition does not establish fixed brain paths is not sufficient reason for the elimination of all repetition in teaching and learning Rather the teacher and educational experimentalist must determine the value of repetition from controlled experiment and from their own responsible observations. It is apparent that in learning some materials, repetition upon occasion is desirable or necessary. But at this point a word of caution and qualification is required. The old adage that "practice makes perfect" must be significantly qualified, because frequent repetition of an act does not *of itself* account for learning. In some forms of learning, as in the acquisition of skill, what repetition does, principally, is to provide opportunities and conditions which are favorable to the discovery and selection of the right response, which can then be practiced. In other types of learning, repetition provides opportunities for the greater apprehension of details, meanings, and relationships which may not be apparent at first. Re-reading poetry and prose of all kinds, viewing still or moving pictures more than once, and re-hearing musical compositions are cases in point. Repeated contacts

enrich the perceived materials so that learning is fuller, more effective, and more lasting because more meaningful.

As a matter of fact, teachers find that even such a subject as spelling can be taught successfully in the lower grades with a very small amount of repetition. In a school with which one of the authors is familiar, instead of repeating every word ten times or more successively, third grade pupils are afforded a variety of contacts with the different words, after which a test is given without any previous massed repetition of the isolated words. After this test, the relatively few misspelled words are written three times each, this minimum of repetition having been found sufficient for maintaining standards acceptable in many schools. In fact, in a number of schools which minimize pseudo-mechanical repetition, objective tests have shown that, as a group, the pupils' achievements in reading, spelling, and arithmetic are superior to those of pupils in schools that are similar, except that the latter adhere to the conventional instructional practices.[9] Furthermore, the advantages of minimized repetition are not restricted to a reliably superior average score on tests in the above-mentioned subjects, for pupils in the non-conventional schools are reported as excelling in such qualities as cooperativeness, poise, creative abilities, self-discipline, and scientific outlook. It is probable that all these desirable attributes do not result merely from minimizing repetition, but it is a fact that where pseudo-mechanical repetition is minimized, there do we find a general atmosphere that is conducive to the individual's development. A recent survey (the conclusions of which were reported in October, 1941) by the New York State Education Department, after evaluating non-conventional practices in New York City, provides additional confirmation in this respect.

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[9] See J Wayne Wrightstone, *Appraisal of Newer Elementary School Practices*, Teachers College, Columbia University, 1938, p 203, and *Appraisal of Experimental High School Practices*, same publisher, 1936.

A great saving in the time and energy of school children in the early grades has been achieved through the reduction of pseudo-mechanical repetition which, under proper guidance, can and should be accompanied by a consequent rise in their social, emotional, and intellectual development, depending, of course, upon the nature of the materials being learned In the upper grades and the secondary school, pseudo-mechanical repetition may be used more intelligently when it is evident to the learner that technical terms or a foreign language, for example, are valuable tools. But even in these areas modern methods have been devised that place less emphasis upon rote memorization and more upon context, use, and varied contact.

Returning to the prefix "pseudo," it is evident that the process of memorization is not a simple mechanical action like a series of dominoes set in a row to knock each other down in succession The following validated generalizations demonstrate that memorizing is not a simple mechanical process. All studies from those of Ebbinghaus to the present time show that the end terms in a series are remembered better than the middle terms Digits can usually be remembered better if they are grouped, as when nine digits are arranged in groups of three. Accent and rhythm aid most learners, and each learner is likely to introduce rhythms and accents of his own, which are revealed in the memorized result. Instead of being purely a mechanical series, even the most meaningless of nonsense syllables, letters, or digits take on patterns depending in part on their own characteristics and partly upon the learner who organizes as he repeats them. In addition, nearly all school materials intended for memorization have for the learner more or less meaning which enables him to translate them into his own words. Consequently, the term pseudo-mechanical repetition stands for a process, which at its worst is far from being entirely mechanical

The mechanistic conception of learning exemplified in

rote memorization belongs with a static conception of society and with dictatorial procedures from the governmental head down through the school administrator to the teacher and the pupil The verb "to dictate" has shifted in meaning from one's mere saying of words which another person writes down exactly. "To dictate" now connotes a political dictator telling his subjects what they must do in every aspect of their lives, and not infrequently the term applies to the autocratic parent or teacher giving orders to youngsters. Children and youths, teachers and parents, *all* need to be watchful lest the dictatorial atmosphere of home and school carry over into every action. The method of pseudo-mechanical repetition as practiced in the classroom is essentially one in which the pupil does what he is required to do in a task set by someone other than himself. It is a method which, if utilized as the basic procedure in learning, makes no provisions for individual differences among pupils, stifles their spontaneity and interests, and provides one of the principal reasons for the negative or indifferent emotional attitude so many children have toward school The individual organism cannot fully develop in an atmosphere of mechanical routine. A democratic society cannot emerge under conditions that stultify its members and prohibit intellectual explorations, or under conditions that suppress the exchange of opinions and concepts between the people and their guides or leaders.

Nevertheless, the approach to learning through pseudo-mechanical repetition has its uses even in a democracy. For instance, spelling must be accurate enough to serve the purposes of the communication that underlies the common life and by means of which individuals and groups develop. The exact words of a poem and the exact notes of a musical composition cannot be denied a place in our cultural life. A mathematical proposition, a scientific fact or law, or an historical fact is most valuable in its exact form. Yet even these and similar materials are best acquired, understood, and

used if repetition is attended by opportunities for gaining insight, and if their acquisition rests upon the learner's own motivation, guided and stimulated by the teacher, but not dictated by him. In short, repetition under most favorable conditions. Thus pseudo-mechanical repetition may become on occasion a useful tool in higher approaches to learning—esthetic, intellectual, and social As teachers use rote memorization cautiously, they need ever to keep in view visions of generations of children who quit school without an education because of monotonous lesson-saying, and of modern dictatorships in which emotionalized conditioning and the parroting of verbal slogans and misinformation are the rule of life Where rigid, mechanical stereotypes are desired as the outcome of education, where insight and thinking are to be minimized, there will conditioning and pseudo-mechanical repetition be maximized.

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A detailed presentation of the experiments performed by Ebbinghaus.

XIII

TRIAL-AND-CHANCE SUCCESS

"WE HUMANS learn through trial and error" is a common saying, which implies that the learner is sometimes lucky enough to happen upon a successful move. This old proverb, like many another, states a common-sense conclusion that preceded by centuries the attempts at its scientific explanation. If the student thinks back to the beginnings of learning before schools and teachers required rote memorization from pupils and before laboratories devised conditioning techniques for infants, the question will occur: How can an individual learn anything *by himself?* Or consider in connection with this question the new discoveries coming constantly to our attention. The easy answer may be made that man advances through many trials and the few successes that come by chance. But it is more difficult to explain just how "chance" operates to produce and establish new forms of behavior when one acknowledges that pseudo-mechanical repetition and conditioning can only preserve the old verbalizations and routines of past, or customary, behavior.

This problem of *new* learnings becomes still more difficult for the student of today who accepts the evolutionary theory of human development He must find through comparative

psychology a corresponding educational theory in which the learning processes of the lower animals become forerunners of human learning He cannot say, "Man has an inventive mind, while the ape, the dog, the cat, and the bird do not " On the other hand, the critical, scientific student will not accept as an explanation the claims commonly made by persons without training in psychology that their animal pets show intelligence approaching the quality found in the human species. *Creative* human thinking should not remain a mystery, nor should it be credited to the sub-human animal

Thorndike's Early Animal Experiments

In the late eighteen-nineties, when questions like these about animal and human learning were disturbing scientists, Edward L Thorndike, then one of the younger American psychologists, worked out experimentally a set of hypotheses intended to answer these troublesome questions This Thorndikeian interpretation of learning became the basis for the educational psychology most widely taught in teacher-training institutions and most widely accepted by teachers in the United States during the first two decades, or more, of the twentieth century. Thorndike's experiments with fish, chickens, cats, dogs, and monkeys were influenced by a desire to replace the anecdotes commonly related about the intelligence of animals with a more scientific statement of the factors influencing learning—a statement that would stand the tests of the law of parsimony. He sought to use Ockham's razor to cut off unnecessary references to *reasoning* and *mind* in the explanation of animal learning—and perhaps of human learning also. We will present as representative of his methods and conclusions a few experiments with cats; for the cat experiments are the most noteworthy.

A hungry cat is put into a "puzzle-box" (Figure XVIII) while a piece of fish is placed outside, so the cat has the

double incentive of escape from the confining box and of hunger for the fish to stimulate him to activity on his own
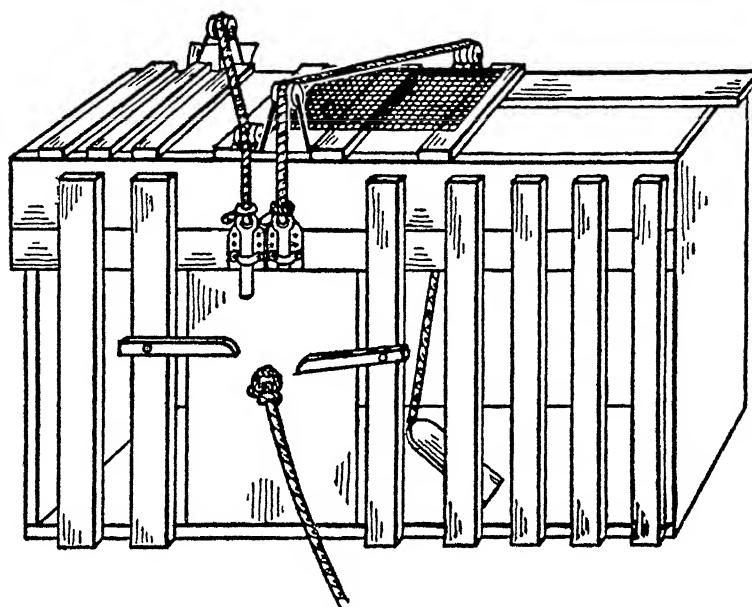
FIGURE XVIII — A Thorndike "Puzzle-Box" The hungry cat had to escape from this box in order to get a piece of fish placed outside (From Edward L Thorndike, *Animal Intelligence* By permission of The Macmillan Co, New York, 1911)

initiative Some "trick" device is provided to permit the cat's escape. For example, the door, which opens outward by means of a spring, is released in one case when the cat moves a button at the side of the door, in another case the door opens when the cat pulls a cord attached through pulleys to a bolt, and in a third case when the cat depresses a lever. Each of these "tricks" is within the physical and anatomic ability of the cat as he uses his paws, claws, and teeth. Under these circumstances of hunger and confinement the cat becomes very active and agitated, he claws and bites various parts of the cage, thrusts his paws through openings, and

shows much hit-or-miss activity in trying to escape. As these promiscuous movements go on, the lucky cat eventually makes *by chance* the movement necessary to release the door by striking the button, pulling the cord, or depressing the lever, as the case may be Thus the cat through his own efforts escapes and eats the fish. But has he *learned how* to open the door?

When at least enough time had passed for the cat to become hungry again, perhaps the next day, Thorndike replaced him in the same box from which he previously escaped—let us say, a "puzzle-box" which opens when a looped cord hanging at the back of the box is pulled, thus releasing a bolt at the door in front. On this second occasion, the cat may take *either* a longer or a shorter time to happen upon the cord-pulling act, which indicates that he has *not* yet learned how to open the door and get the fish. His success still depends upon the chance sequence of random movements. After a long series of trials at intervals of twenty-four hours, in which the time curve for the early trials shows appreciable irregularity, the time required to reach the successful cord-pulling act is reduced considerably; and after several more trials the cat will pull the cord almost immediately when he is put in the "puzzle-box " (See Figure XIX.) The cat is able to open the door, but *how* and *what* has he learned?

The "Law of Exercise" as an Explanation

The untrained observer might say that the cat had "caught-on" in some way to the cord-pulley-bolt-spring arrangement, or even that he "understood" or "had an idea" about the method of escape. Thorndike, however, was seeking a simple, parsimonious, scientific explanation, and offered first, therefore, the principle of repetition which is dignified by the title, "Law of Exercise."

Let us examine critically this principle upon which the teacher and experimenter depend in pseudo-mechanical repetition and conditioning where the repetition is insured by controls outside the learner In trial-and-chance success,
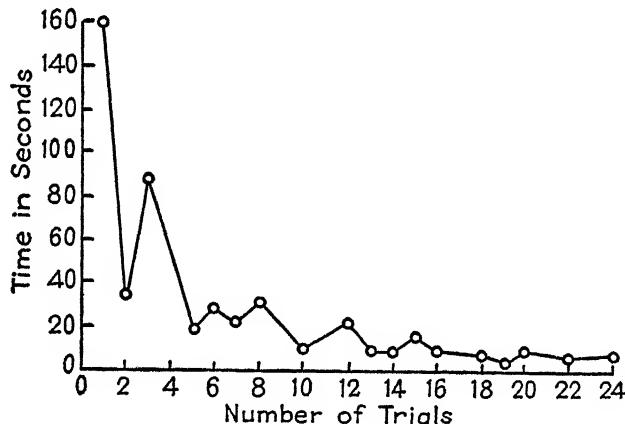
FIGURE XIX —Learning Curve of One Cat The time taken by the cat to escape in successive trials is represented by the height of the curve, the successive trials are laid off along the horizontal base-line (From Edward L Thorndike, *Animal Intelligence* By permission of The Macmillan Co , New York, 1911)

does the learner really repeat the successful act more often than the unsuccessful ones? Suppose we designate the cat's different acts by letters his biting in the upper-left-front corner of the cage, for example, as A, scratching at the bottom of the door as B, poking a paw through the bars at the right-front corner as C; and so on for each of the cat's unsuccessful acts; while we designate the successful act of pulling the cord as S In such a series made on the first trial, how many repetitions of the unsuccessful acts may occur? In fact, such a series as the following is likely ABCDAEFBG-DHECIJKJLMBFS Can not *repetitions of the unsuccessful act* occur during the first trial? Can more than one successful act occur? Your answers indicate that when the cat escapes from the box the first time he leaves behind him, or rather

carries in his experience a record of *repeated errors* (2A's, 3B's, 2C's, 2D's, 2E's, 2F's, 2J's) against a *single* occurrence of the chance success (S) So far, repetition would appear to be a negative factor in the process, preserving, if the "Law" operated, the unsuccessful rather than the successful acts.

Does repetition furnish a parsimonious explanation when further trials are considered? Take the second, third, and sixth trials, for example, with possible series as follows second trial, FAHNOCKAPGKIHS, third trial, HGFBQCDF-NRBGPHACS, sixth, BGTFS. Although these series are hypothetical, it is clear that in four trials the successful act *can* occur only four times, while particular unsuccessful acts *can* occur *more than* four times (5A's, 6B's, 5C's, 6F's, 5G's, 5H's) Furthermore, close observation of the cat's actions in these and similar experiments brought out the point that in pulling the cord the cat performed *different* physical acts once it pulled the looped cord with its right paw, once with its left paw, once with both paws, and once with its teeth. Thus the repetition was not sufficiently exact to fall under the simple assumption that the same sequence of movements occurs and the same neurones and muscles go into action in the same way on each occasion. Whatever repetition of the successful act occurs must be held together by some degree of intelligent recognition that these different physical movements produce the same result. In other words, chance can scarcely provide the number of repetitions and the degree of exactness in repetition required to make repetition an adequate or a substantial explanatory factor. Mere repetition would suggest rather why the cat continues to make errors, and this principle leaves the student wondering how the cat learns at all.

The "Law of Effect"

Thorndike offered, in addition to the repetition factor, or "Law of Exercise," the principle of emotional satisfaction

which he called the "Law of Effect" The satisfaction of the cat in escaping and eating the fish is assumed to strengthen the effect of the repetition of the successful act Again critical examination of the factor seeks to find just *how* "satisfaction" acts How can a satisfactory feeling become attached to the successful act (S) and be kept detached from the unsuccessful (A, B, C, etc) acts, *unless* the cat is able to recognize more or less intelligently which act promotes his escape? Satisfaction is not part of the string-pulling, unless the animal can make a transition from "open-door-eating-fish" back to "string pulling." If he does make such a transition, it appears that he must apprehend this relation between "pulling string" and "eating fish" In the interest of a scientific and parsimonious explanation, one would have to have the factor of emotional satisfaction operate automatically through physiological mechanisms as in the "conditioning" process But the puzzle-box is not like the conditioning situation, wherein the animal gets a shock or hears a bell, for example, *while* in the act of eating. Therefore, the trial-and-chance-success approach to learning cannot be reduced to simple conditioning, for repetition of chance success is not accompanied by "satisfaction." The successful act occurs *before* the satisfaction of eating can begin. Since repetition of success does not predominate and since "satisfaction" does not attach to success physiologically and automatically, the critical student is still left wondering how a cat or a child can learn by himself through mere trying without using "ideas of any sort" or being credited with intelligent discrimination that goes beyond over-parsimonious explanations restricted to the action of repetition and satisfaction.

"Recency" as an Explanation of Learning

As a further suggestion toward reducing trial-and-chance-success learning to simple conditioning, John B Watson, an

early champion of the latter approach to learning, presented the principle of *recency,* that is, the last act in a series receives additional emphasis simply because it has occurred most recently. Thus in the puzzle-box series of the type described above the successful act (S) is also the last or most recent act. Furthermore, this S act is closest in time (Law of Contiguity) to the emotional satisfaction of escape and eating. The factor of recency appears more promising up to this point than the factor of repetition (or frequency) because of the latter's obscure connections with the factor of satisfaction. The student should remember, however, that in the series each act—even the last—does not stand out *for the cat himself* as a separate piece of behavior, as does each act *for the observer* when he designates it with a letter. In other words, for the cat, more than his last movement is really contiguous with his escape. In addition, cats did learn in other experiments conducted by Thorndike to perform a *combined series* of acts, such as depressing a lever (S_1), pulling a cord (S_2), and raising or lowering a wooden bar (S_3) in making their escape to freedom and food. How three acts could be selected from such a series—ABCDEFGHS$_1$, IJB-FKLMS$_2$, NOMCDPBS$_3$,—is certainly explained neither by recency nor by repetition, while satisfaction must surely depend upon some other factors to promote its attachment in appropriate spots and to effective moves. It appears, then, that the trial-and-chance-success experiments, though parsimoniously interpreted, do not furnish such a new, scientific explanation of learning as might be desired.

Trial-and-chance-success experiments commonly include, in addition to puzzle-boxes, the use of mazes in which the rat or other animal learns through many trials to run quickly from the entrance to the food reward by the shortest possible route. (See Figure XV.) The complex process of acquiring a unified, organized way of running a particular maze with its many turns does not lend itself readily to explanation

by the principle of repetition, because erroneous wanderings into blind alleys occur too often in the early stages The principle of recency also seems quite inadequate to explain how the rat *gets started* on the short path toward his goal The problem of attaching "satisfaction" to a right turn rather than a left turn when only half-way to the goal again eliminates this factor as a specific explanation Thus the trial-and-chance-success experiments fail to explain how learning occurs specifically, although they demonstrate that even a lowly animal *can learn for itself by some process that apparently is more complex than conditioning*[1] This learning process is evidently derived from many trials made in the cat's own way on its initiative. Thorndike, however, makes a useful point when he shows that learning is *supported* by the learner's individual satisfaction in gaining his own goals of food or of freedom for further activity, although the explanation of *how* this satisfaction operates may be lacking

A pronounced advance is made in learning and teaching when a child is given an opportunity to take his own "chance" under guidance, as compared with binding him to the past through forcing him into pseudo-mechanical repetition of adult verbalisms or molding his behavior by means of conditioning techniques without even permitting him to be aware of the process. But when the learner is restricted to finding by chance and haphazard activity the experimenter's "trick" device, he cannot advance far in personal initiative and self-direction.

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[1] See Isadore Krechevsky, " 'Hypothesis' versus 'Chance' in Presolution Period in Sensory Discrimination Learning," *University of California Publications in Psychology*, vol 6, 1932

The author of this study, experimenting with rats, states that "   helter-skelter unorganized trial and error response as a description of the early part of the learning process is invalid   " These white rats showed an organized and systematic attack on the problem confronting them

Random Activity Educationally Undesirable

What practical use can be made of the trial-and-chance-success approach to learning in school and in life? A sticking door, or a complex lock, or a mathematical problem may make a person feel very much like the cat in a puzzle-box. In the first case he may try random pushes and pulls until he learns by chance that pushing down on the knob is effective. In the second case he may turn the key backward and forward, and eventually out of promiscuous turnings he may happen upon the half-turn to the right and the three-quarter turn to the left that form the necessary sequence. In the third instance he may blindly try now this process and now that, eventually arriving at what seems to be a solution; but arrived at without understanding Thus in every-day life those who are not intelligent about doors and locks and a variety of problems "get by" frequently through chance success But in school, random action and sheer guessing are discouraged Although a teacher may encourage a pupil to "guess" in a mathematics or science problem, the teacher really expects an estimate or a pertinent suggestion rather than a statement entirely at random. From the standpoint of teaching, putting a learner in a "maze," so that he must wander unintelligently and waste his time in mere movement or guessing, scarcely can be justified As we shall see more clearly when the next two approaches to learning— "retrial for motor skill" and "insight through visual survey" —have been considered, a person can *learn for himself* by processes that are far more effective and intelligent than trial-and-chance-success experiments suggest.

Thorndike's More Recent Views

In our discussion of trial-and-chance-success we have drawn on the work of Thorndike for experimental materials

and their significance for the psychology of learning For his work, as already stated, has had considerable influence not only on the psychology of learning, but also upon educational practice. Thorndike's more recent views on learning do, however, show some modifications as compared with those stated in his *Educational Psychology* of 1914. Yet the essential character of the more recent doctrine—frequency, satisfaction, neural bonds—is much the same as that of the earlier doctrine "The common form of intelligence of animals, their habitual method of learning, is not by the acquisition of ideas, but by the selection of responses " [2] There is a possibility, says Thorndike, that dogs and cats may have a few ideas, "inner representation," of some common objects often experienced, and of some common acts Monkeys and chimpanzees, also, often show signs of "inner consideration" in their behavior But we are told that essentially their learning is of the "try, try again method, with gradual selection of a suitable response by the satisfaction it brings rather than by deliberation and insight " [3] Finally, referring to the human species, Thorndike states, "Indeed this same type of learning is found in man . . . we do not learn in the main by virtue of any ideas that are explained to us, or by any inferences that we reason out We learn by the gradual selection of the appropriate act or judgment and its association with the circumstances or situation requiring it, *in just the way that animals do This purely associative learning* by trial and success to respond to this, that, or the other way to situations directly presented to sense is the same in its general nature from the minnow to man, but great developments take place in the quantity and quality of associations formed." [4] Now, while it is true that in his later

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[2] Edward L Thorndike, *Human Learning*, The Century Co , New York, 1931, p 165
[3] *Ibid* , p 166
[4] *Ibid* , p 166 Italics are the present authors'

publications Thorndike recognizes the roles of interest, general health, energy, and wants in man's learning, these are regarded as supplemental or secondary considerations, the *learning process* still being viewed as essentially of the "try, try again" kind said to be characteristic of the infra-human animal order in the puzzle-box or maze-like situation [5]

In subsequent chapters, the student will have an opportunity to become familiar with other approaches to learning, approaches which cast much doubt on Thorndike's sweeping characterization of man's learning, and which are richer in their promise of human development. For the moment, however, we wish to point to the fact that when an intended learner is confronted with a new puzzle, process, formula, principle, or task, he will not be able to deal with it most effectively unless the situation is somehow brought within the range of his capacities, of his apprehension. Otherwise, the task, problem, or what not, becomes an obstacle with which to fumble It is possible, however, that in the course of his fumbling, the elements, their relationships, and the solution or procedure will be revealed to the intended learner. But learning by fumbling is neither the most effective nor the desirable procedure This suggests the unwisdom of adopting a mere "try, try again" approach. A most effective approach is one that will reveal to the pupil the characteristics of the material to be learned or problem to be solved in such a way that it is apprehended as something significant to be dealt with. Learning takes place best when the pattern of the act is grasped by the learner himself, and when favorable conditions exist to promote such a grasp, learning is expedited.

[5] Edward L. Thorndike, *Adult Learning*, The Macmillan Co , New York, 1932.

Contributions of Trial-and-Chance-Success

In summing up the contribution of the trial-and-chance-success approach to learning, we find the freedom to try and try again in one's own way is a marked advance beyond the bondage of conditioning and pseudo-mechanical repetition The emphasis upon emotional satisfaction of the learner in the attainment of objectives appropriate to him is likewise a step forward from unawareness of objectives and from the acceptance of verbal objectives set by teachers. But in trial-and-chance-success, freedom and satisfaction are both seriously limited. Freedom to work on a problem rigidly determined and prescribed by the teacher or parent, followed by additional and similarly rigid and prescribed problems and situations, hardly promotes the learner's spontaneity and active interest; nor does such freedom give him any experience in self-determinative participation. Furthermore, any learner placed in a situation so difficult that he must depend upon mere "chance" *appears* to be stupid, he can neither show intelligence nor become more intelligent unless the situation permits him some degree of understanding, that is, permits an analysis of the elements and their relationships If parents and teachers wisely abandon intellectual mazes and puzzle-boxes in teaching children, they may still turn the youngsters loose to try for themselves in order to learn and to find their satisfactions in situations relevant to the developing child's needs and interests, and consonant with his capacity. But each individual set wandering at random is apt to bring only disorganization into the situation and anarchy into his own attitudes. Since we seek intelligent organization and social democracy, we must find corresponding ways of learning and teaching that carry with them opportunities for the young individual to learn for himself and to find emotional satisfaction therein But in addition, adult guides must indicate more clearly *how* skills are attained,

insights achieved, plans made and tested, appreciations enhanced, affections widened, and life stabilized. Trial-and-chance-success experiments only demonstrate that children can learn for themselves. But this approach to learning still leaves parents and teachers face to face with the problem of discovering more effective methods of guiding children and youths into intelligent and constructive activities that will genuinely contribute to their own development and to the development of a better community These desirable ends can be promoted through the utilization of other more advanced approaches to learning

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XIV

RETRIAL FOR MOTOR SKILL

EARNING A motor skill may be a much more intelligent process than *chance* discovery of the way out of a maze or puzzle-box, although both skill and chance-success approaches to learning usually require many a retrial Consider how the "blind" trial with *random* action characteristic of chance learning is superseded by the "seeing" trial with *self-guided* action in attainment of skills like these an infant of fifteen months learning to walk to his mother, a four-year-old trying to throw a ball to his playmate, an eight-year-old learning to write a note to his classmate; an eleven-year-old gaining control of carpenter tools as he constructs a boat in the school shop, an adolescent practicing on a flute until he "makes" the school orchestra, a young machinist qualifying in his trade, a ballet dancer competing for a stage contract, an interne mastering surgical techniques This short list of skills may represent the wide range of intelligently guided activities from infancy to adulthood and from relatively unskilled labor to the most remunerative professions

The emphasis upon self-guided action in retrial for motor skill should be extended to include the guidance that comes from the learner's paying attention to the directions, suggestions, and demonstrations of a teacher. This kind of guid-

ance becomes more appropriate as the learner matures and as his skills become more intricate, while his ability to receive instruction also increases It is evident also that such guidance means a broadening of "seeing-trial" rather than any reversion to blind trial and random action.

Role of the Senses

Although in persons with normal vision the eyes serve significantly in attaining and maintaining most motor skills through looking at one's own acts and objectives as well as observing the demonstrations of teachers, the meaning of "seeing trial" must be expanded to include the other senses that contribute to the guidance of each movement. The kinesthetic sense through its specialized nerve endings in the joints, tendons, and muscles gives the learner a feeling of the movements being made and of positions being taken —say, in throwing a ball—by the fingers, hand, arm, legs, head, and trunk without his seeing more than a small fraction of these conditions Kinesthetic impulses are evidently quite as important as visual impulses While the eyes look mainly beyond the body toward the objective to be gained, the kinesthetic receptors bring inward impulses from the muscular actions occurring in the body At the same time the specialized sense organs of touch, temperature, and pain may add to one's perception of tools or give him warnings of awkwardness.

When skill involves sound production, whether incidentally as in sawing a board or intentionally as in playing a violin or in speaking to an audience, the ears and the rest of one's auditory equipment participate during trials and demonstrations of these skills, complementing the sense organs already mentioned in the improvement of the skill. Every hour of a child's active life or of an adult's vocational and avocational activities offers opportunities for the acquisi-

tion, use, and refinement of some motor skill of the hands, feet, vocal organs, or the whole body, except in the case of adults who have reached their peak or physiological limit of performance in a given activity Evidently, the attainment of motor skill involves a coordination of sensory mechanisms and muscles characterized by a degree of intelligence. This intelligent choosing for one's self through perceiving movements and objectives is far above the behavior involved in merely being sufficiently sensitive and retentive for conditioning by some adult dictator, or in accepting and following a teacher's objectives in pseudo-mechanical repetition, or having good or bad luck in a trial-and-chance-success situation.

Learning through Self-Direction

Let us begin our consideration of the significant contributions of this approach to learning by excluding at first every form of guidance by teachers. How far can one go in the attainment of motor skills by personal experimentation? Given normal bodily equipment of muscles, skeleton, sense organs, coordinating brain, and the rest, the infant when provided with a roomy, solid floor and a few objects to which he can cling would doubtless in the course of a year or more *take himself* through pivoting, creeping, and standing alone, to walking in the erect human way. Likewise, he would probably learn by himself to stack up and possibly build with blocks, to pick up a stick and use it as an implement, to throw a stone or a ball, and to make some use of a hammer and saw.

As a matter of fact, few children get an opportunity to develop these and other skills as much as they might under a sufficient degree of independence and self-criticism because the family and friends are obsessed with the notion that the infant and child must be directed in every move, and that his every move must be an accurate imitation of the adult's

So his well-meaning adult guides admonish and demonstrate for the youngster instead of giving him the necessary freedom for self-guidance. But more adults, becoming impatient with the child's relatively crude efforts, too often "take-over" and complete the task themselves The child thus not only is denied the opportunity to learn and the satisfaction of achievement, but he is being impressed with his own "incompetence"—a feeling which may persist for years and spread to other and unrelated activities. It is not rare to find college students doing poor work because of feelings of inferiority developed in them by impatient and unwise adults Parents and teachers might well contribute to the intelligence of children by dictating less in motor learning and in many other activities so that more self-guidance and total coordination will be encouraged A prime lesson of motor skill attainment is that one may learn much without dictated "lessons," but with sympathetic guidance instead Upon such a basis of initiative, experience, and self-confidence, the further social guidance that is so important, even in primitive cultures, functions most effectively.

The student is not to assume that we are advocating a doctrine and practice of "laissez-faire" and "no instruction" in the development of skill or anything else. It is well known that such a policy would permit the acquisition of many faulty, ineffective, and perhaps unfortunate practices, costly in time and effort and difficult to undo The absence of sympathetic guidance in learning may be a cause of the learner's failure because he may not know how to employ the capacities and tools which he has at his disposal For example, a young woman, a student of piano, believed she had reached her "upper limit" in piano playing after some years of fairly continual instruction. Nevertheless, she resumed her studies and practice under a new teacher who taught her new techniques and new approaches, giving her new insights into what she was doing, so that after several years of such in-

struction she had very appreciably surpassed her previous "upper limit" of ability and performance What we *are* rejecting, however, is the dictatorial, rigid, and often impatient forms of instruction which invade the learner's activities, deny to him the opportunity "to do," to discover for himself, to be self-critical, to gain new insights

Furthermore, the instructor, whether parent or school teacher, must always have in mind the purposes for which a given form of activity and instruction in a skill is being provided Is it for the purpose of developing highly skillful performers for public exhibition and display? Or is it for the satisfactions the individual himself derives from "the doing"? There are times when a child's formless scribbling and amorphous splashes of color are more significant for him than would be a precise drawing or painting And there are times when a crudely built playhouse or piece of furniture, or a "dub's" game of tennis, or a tyro's rendition of a musical composition is more significant for the individual concerned than is the insistence on a certain instructor's unwarranted standards or on perfectionism Finally, however, after the initial steps and achievements have been attained under conditions of spontaneity, self-criticism, and sympathetic guidance, the more formal and precise methods of instruction may assume a role of increasing importance.

"Repetition" in Developing a Skill

The student of learning who is looking for a simple, "parsimonious" explanation of the attainment of motor skill may be disappointed. Take the factor of repetition for first consideration Does a six-year-old learn to throw a ball *to* his playmate's hands by repeating the process correctly, like a seven-year-old learning to spell a word by exact repetition? Obviously not; he learns to hit his objective mostly by missing it. He throws too high or too low, too far to the left or

to the right At first he throws awkwardly, but in later trials he may do better Through six years of seeing, his eyes have learned to judge distances much better than in infancy Now the eyes also notify him of the relation of his attempt to the objective. The several sense mechanisms—kinesthetic and touch especially—aid in coordinating the action of hand, arm, and body in the throw with such conditions as the size and weight of ball and the distance. The learner must *feel* himself into the muscle-eye coordination. Others can not "feel" for him, although they may demonstrate and give helpful verbal suggestions Likewise, his own strength, shape of hand, length of arm, proportions of limbs and body require that the learning of the throwing skill or of any other skill be an individualized process within a general pattern based upon similarity of structure, and perhaps upon the rules of the game.

Every time an individual improves his skill, whether during the relatively awkward periods of infancy and childhood, or in youth and adulthood, as does a precise watch repairman, cabinet maker, or professional pianist, he *teaches himself* in large measure. Whatever guidance is given remains always supplemental to the personal experience of the learner. He becomes skilled in the use of his body through guiding himself, to a large degree, from awkward, crude movements toward objectives and into movements that are more precise and effective. During these trials and retrials, complex changes occur at least in the nervous and muscular systems. These modifications are too complex to be predicted in advance by the most able neurologist or to be recorded, as they occur, in detail by the most accurate electrical instruments. In other words, there lies between the crudeness of the first trial and the precision of the best performance a series of complex changes which cannot be reduced to the simple explanation of exact repetition that seems so appropriate in conditioning and pseudo-mechanical repetition For, after

all, if one developed a skill merely through repetition, a child, for example, could never learn to write, because he would be repeating only an illegible scrawl The "Law of Exercise," [1] which stresses the primary importance of repetition as found in trial-and-chance-success experiments, must be reinterpreted in a way that calls attention to many factors and emphasizes the general maxim, "Personal experience of the whole integrated organism is an able but subtle teacher."

Satisfactions in Developing Skills

The so-called "Law of Effect," [2] which is based upon a "satisfying state of affairs" accompanying or following the response to a situation, also needs reinterpretation in relation to motor learning Two kinds of satisfaction or emotional effect may be distinguished Children, especially, enjoy physical activity, so they find satisfaction or joy in movement, irrespective of objectives. As they come more and more to choose objectives for themselves, they find proportional satisfaction in moving toward and reaching the objective. The infant just throws things "for fun" without regard to where they fall or what they hit, and apparently gets satisfaction from his own energetic, but random, movement supplemented perhaps by the big bang that follows The older child chooses to throw *at* targets or enemies and *to* friends, getting satisfaction and motivation for further throwing both from the exhilaration in the movements and from the effective results attained through increasing skill.

Between the extremes of pleasure in mere movement and satisfaction in reaching objectives skillfully and intelligently, there lie skills, such as rhythmical dancing, in which the child

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[1] See Chapter XIII for discussion of Thorndike's "Law of Exercise" Also, Knight Dunlap, *Habits Their Making and Remaking,* Liveright, New York, 1932, Chapters 1-5

[2] See Chapter XIII for a discussion of Thorndike's "Law of Effect"

invents spontaneously without specific goals or objectives in view. The point is that satisfaction is a term that refers to the feeling accompanying a broad range of experiences, in some of which the satisfaction may be increased through intelligent discernment of the means by which the end is attained In these cases, intelligent activity may have two aspects (1) the relating of means to ends, and (2) the choosing of suitable ends or goals, both of these aspects being involved in the "satisfying state of affairs"

In other words, satisfaction is not a simple feeling attached or added to a particular act, but is an *integral* aspect of a process which may involve joy in movement, perception of an objective, and skillful attainment of that objective Or, otherwise stated, satisfaction is part of the very "fabric" or pattern of behavior. Parents and teachers, as they watch infants learning to walk, six-year-olds playing catch, and eleven-year-olds building airplane models, may come to see that any individual who has chosen an objective appropriate to his abilities and is provided with suitable conditions of protection and encouragement, as well as with tools and materials, will learn much through his own efforts. At the same time he will experience in the process a feeling of satisfaction which is intimate and personal, and which facilitates and encourages learning Although sympathetic guidance is essential, the youngster should be given an opportunity for action on his own initiative that carries with it the thrill of personal accomplishment Even older persons may retain this attitude toward learning For example, in a group of experienced teachers in a summer shop course, one sixty-year-old woman burst out in the midst of a demonstration, "I want to do it myself." In this sense, doing and learning for one's self is one essential of effective education, while social guidance is another essential and supporting aspect to which we now turn more specifically in our discussion

Possibilities in Adult Guidance

After parents and teachers have recognized that children can learn much through guiding themselves, they may investigate the possibilities of adult guidance. If we are asked to choose between actual demonstration and verbal direction, does not the former seem closer to the act of skill? Even the infant, who has not yet attained comprehension of descriptive terms, may develop incidentally some of the simpler forms of movement made by the family, although no one may be consciously demonstrating manipulation or locomotion for him That is, when his own growth and awkward trials make possible successful reaching or standing, he may be stimulated and guided in his efforts by the action of other infants or even adults Perhaps a change in the motor field, generally, occurs, similar to the change in language development, following which youngsters at about eighteen months more acutely perceive differences in the words heard in the family and begin to seek for and use them. In this connection it will be recalled that after the age of about eighteen months, and for about three or four years, vocabulary increases at a very rapid rate A similar seeking for new skills may constitute a significant phase of motor learning from late infancy to adulthood Thus the cultural environment may enhance the attainment of a wide range of skills just as it may encourage the development of a considerable vocabulary without specific teaching Much adult guidance goes on without the adults or the children being fully aware of the learning process.

The next step toward specific guidance would be a demonstration in which both the learner and the teacher were attending to the common purpose of improving a particular skill. Some form of communication would seem to be essential, such as a child's inquiry "How do you do that?" and the reply, "This way," accompanied by demonstration and

pointing to details in order that the learner's perceptions of the process may be increased. It is extremely important to keep the verbal directions at a minimum and at a level consonant with the learner's level of development, while the pointing carries the main load of communication, because even such a skill as simple ball throwing cannot be exactly described in words, and any unnecessary words confuse the learner Of course, a verbal suggestion here and there may guide the learner as he moves from one trial to another. The point is that the activity of the learner himself carries the main burden in the learning of a skill, the demonstration as perceived by the learner carries a lesser part of the load, while the words of the teacher should be used only at such intervals as are necessary to promote the process of retrial. When teachers and parents learn to talk less *about* motor skills, their pupils will learn more *in* motor skills.

Learning Skills by Wholes

Another fundamental principle of learning upon more advanced levels than conditioning, rote repetition, and chance success appears clearly in motor skill attainment. It may be stated this way: The whole act must be kept in view during learning rather than learning one part at a time. Although the throwing of a ball or any other skill may be broken into parts for detailed observation, the grasp on the ball, the backward swing, the forward swing, and release of the ball must all be coordinated in a unified pattern along with the visual perception of the objective, while the learner experiences the rhythm of the entire act. The significant purpose to be attained suggests "wholeness" in the learning. In contrast, rote memorization of the spelling of single words, the chance acquisition of a single trick movement that will permit escape from a particular puzzle-box, and the conditioning of single reactions to single stimuli are all ap-

proaches to learning that are limited by their piece-meal character. While no act of learning can include everything, each act should have a scope and unity that makes it significant and meaningful to the learner at his stage of development.

The principle of wholeness may be carried a step further into the problem of promoting relationships between learnings or experiences. While a specific conditioning, or a specific verbal item memorized, or a specific trick acquired by chance has little or no positive relation or may even have a negative relation to other conditionings, to memorized items, and to tricks, any *specific* act of skill carries with it a *general* increase in dexterity that may enter constructively into other acts of skill. We say, for example, that the general motor coordination of a child improves considerably during the twelve months of his sixth year. Continually, through a wide variety of muscular activities guided by the eyes and other sense organs he becomes a more skillful individual. Consequently, his own efforts and those of his guides are constantly being rewarded both by the attainment of specific skills and by the increase in generalized coordination. Thus approaches to learning which consistently establish wider relationships are preferred to those that are confined within themselves and as a result often actually retard new learning Parents and teachers are responsible for guiding children into those activities which in the long run will contribute most to generalized abilities and which will promote wholesome and intelligent adjustment.

Developing Handwriting. an Illustration

In addition, the adult guide may aid the learner who has reached a fairly advanced stage in a skill by making verbal suggestions concerning details in the process. After the learner has comprehended the total pattern of the act, he is

able to turn his attention specifically to certain aspects. Thus he may get more at this stage of advanced experience from demonstrations, diagrams, slow motion pictures, and verbal aids than he possibly could at an earlier stage. Teachers need to withhold much of their verbal advice for a relatively late stage in the attainment of complex skills such, for instance, as handwriting

In applying the principles of retrial for motor skill to cursive handwriting, it has become a growing practice in elementary schools to defer this relatively difficult free flowing writing with its rounded lines and connected strokes until the second or third grade when the children are seven or eight years old. It is frequently preceded by some experience in the less difficult printing, or manuscript writing, in the grade below. The principle of "readiness" in motor coordination and in social need for written communication provides more motivation at these ages than when the children are younger.

Continuity in the attainment of skill appears clearly in handwriting, for the seven-year-old is already more or less skillful in holding pencils and making marks with them. While there is no sharp break between the new skill and similar skills previously acquired, the learner at this age is better able to perceive the diverse movements involved in a demonstration and to understand verbal directions than he was earlier.

One of the difficult and all-prevailing verbal directions given is to *relax*. Now relaxation, while sitting correctly at the desk, grasping the pencil in accordance with the demonstration, and keeping correct positions of arm and shoulder, has to be learned. The individual must gradually modify his motor behavior to conform adequately in legibility and speed without producing too much tension As the learner feels his own way into this new pattern of cursive writing, the teacher's guidance must be individual and tactful. A

touch here, a word there, a personal demonstration for this youngster, must replace the general order, "straight backs," that throws many of the children into strained positions and fails to correct the pupils who need assistance The individual attention required in teaching a complex skill like handwriting represents an attitude appropriate for teaching throughout the approaches to learning that are discussed later and stands in sharp contrast to the lack of personal guidance found at the levels of conditioning, pseudo-mechanical repetition, and trial-and-chance success.

Another difficulty, illustrated by handwriting, consists in keeping a balance between attention to the details of the motor activity itself and to the objective in view. Instead of drawing a sharp distinction between these two aspects, unity must be maintained in the process In handwriting, the eyes are either glancing at a copy or the learner may be experiencing a visual image of the letters to be formed Also practically *at the same time,* the eyes aid in keeping track of the hand, pencil, paper, and other factors, supported, of course, by kinesthetic and other sensory avenues As the handwriting skill becomes more highly organized and more smoothly coordinated through retrial, the required degree of attention can be paid to details within the writing process itself, without disrupting the feeling of appropriateness which is characteristic of a skillful act This balance between seeing the whole act or whole problem and noting details *within the total pattern* will appear again as each of the higher approaches to learning is analyzed.

Curves of Learning Skills

Although motor learning contributes significantly to our understanding of the relation of the learner to the teacher and of diverse learnings to each other, the data obtained from motor learning experiments have been used too often

to substantiate conclusions that are not entirely justified. One of these unwarranted conclusions was the assumption by some that a curve approximating an *S*-shape is the theoretical or normal curve of learning, not only for motor skills but for all learning tasks, whereas, accordingly, a curve of any other shape would have to be explained as a departure from the normal, theoretical *S* form. Figures XX and XXI illustrate curves approximating the *S*-shape, derived from
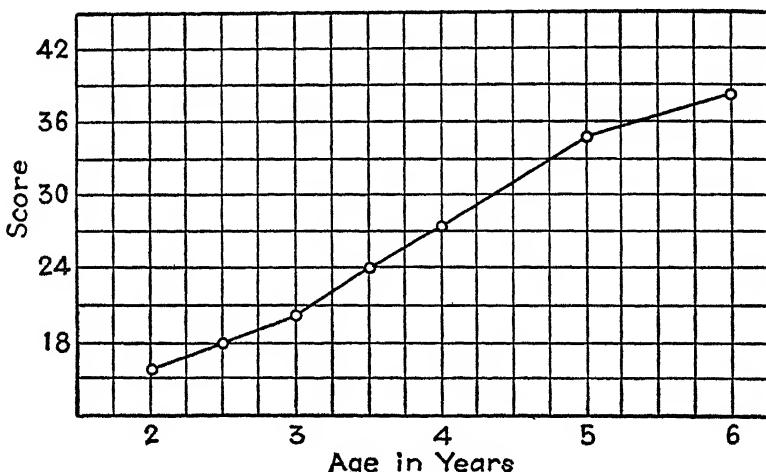
FIGURE XX —Average Speed of Fine Coordinated Movements Putting Metal Stylus in Small Holes for One Minute (Based on data from Baldwin and Stecher, *Psychology of the Preschool Child*, D Appleton & Co , New York, 1924)

studies of the motor skills of children.

Two principles, according to the *S* interpretation, are involved in the production of the *S*-shape curve. The first is that one learns slowly in the early stages when he attempts to develop a new skill or to master a new field of subject-matter. In Figure XX, which is a "work curve," the amount of work accomplished in a given interval of time increases much less rapidly between the ages of two and three years,

while between the ages of three and five years the increase is accelerated In Figure XXI, a "time curve," the "practice group" does not rapidly reduce the time required to climb the stairs until after the eighth week of practice Since
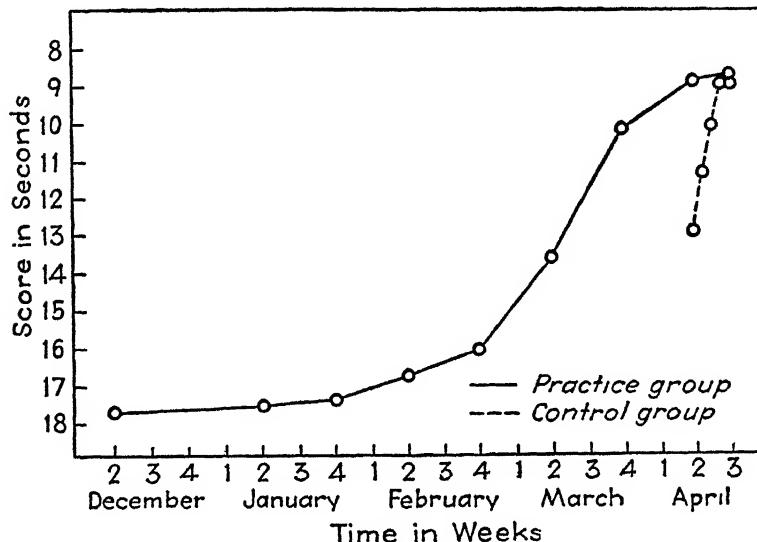
FIGURE XXI —Mean Learning Curve for Two Groups of Preschool Children (average age, 28 months at start) in Climbing Eight Subjects in Each Group Practice group trained for 12 weeks (January through March), control group trained for 1 week (From Josephine R Hilgard, "Learning and Maturation in Preschool Children," *Journal of Genetic Psychology*, 1932, vol 41, pp 36-56)

teachers are concerned with effective learning, such curves are of interest and value because they apparently support the importance attached to the maturation process, as well as supporting the view that it is better to wait until the optimal time before attempting, through practice, to encourage speed and precision in a skill. In the experiment on stair-climbing, the importance of maturation is demonstrated rather emphatically. We may thus conclude from these experimental data that effective practice in this difficult and rather complex activity could well be deferred until the age

of about thirty-one months, so far as *this group* of children is concerned, the particular optimal age depending upon the individual child The student is reminded, however, that this view does not mean that the best policy is to let
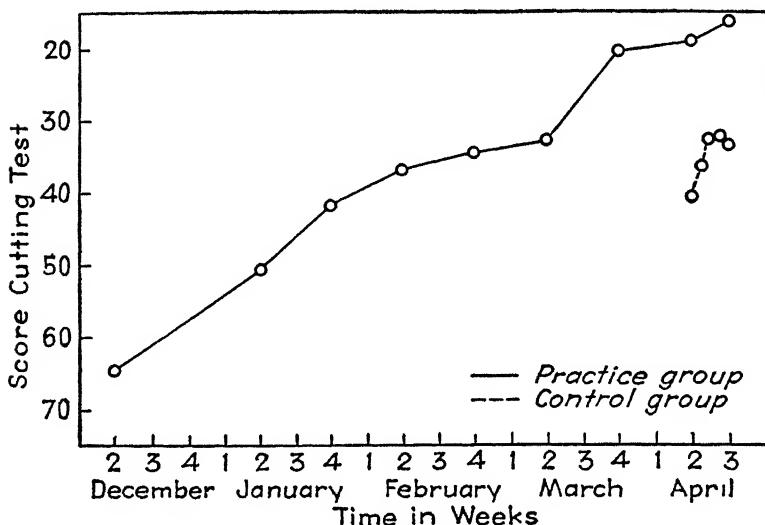
FIGURE XXII —Mean Learning Curves for Two Groups of Preschool Children (average age, 28 months at start) in Cutting Ten Subjects in Each Group Practice group trained 12 weeks (2d week in Jan through 1st week in Apr), control group trained 1 week. (From Hilgard, *op cit*)

"nature take its course," nor that a child will develop his capacities regardless of opportunities for activity and learning It means simply that opportunities for activity in and learning of a skill are most effective if provided during optimal periods.

The curves discussed above are of interest to us for still another reason. They demonstrate that the particular character of a learning curve will depend in part upon the developmental status of the learner. For the early phases of the S-curve, in some instances, can be eliminated by deferring the beginning of practice in the new activity until a

later stage of maturation, in as much as the relatively slow improvement during the early phases results from the relative immaturity of the learners As a matter of fact, the student will find that curves representing the development
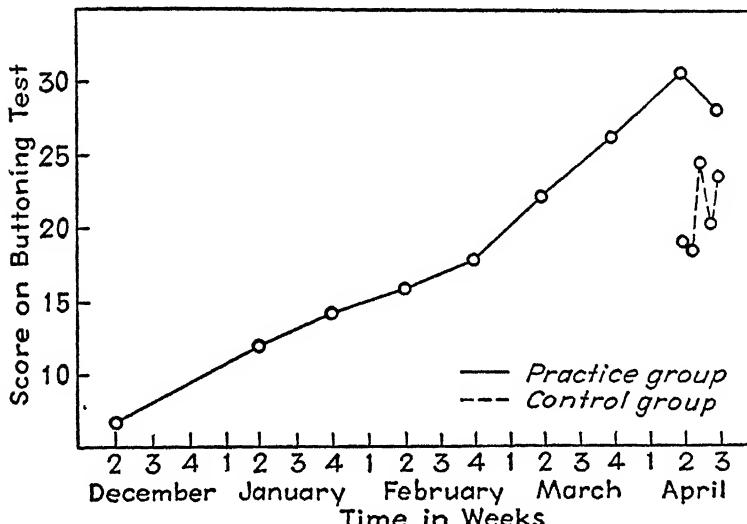
FIGURE XXIII —Mean Learning Curves for Two Groups of Preschool Children (average age, 30 months at start) in Buttoning Nine Subjects in Each Group Practice group trained for 12 weeks (2d week in Jan through 1st week in Apr) Control group trained for 1 week (From Hilgard, *op cit*)

of various sensory-motor skills differ considerably with respect to form, depending upon the learners' ages and upon the tasks to be performed [3] (See Figures XXII and XXIII)

Another curve often presented as typical in motor learning does not have the *S*-shape, but, on the contrary, accelerates rapidly from the beginning. The smoothed curves in Figures XXIV and XXV show this form as found in experiments in learning telegraphy and typewriting

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[3] For example, Henry M Halverson, *An Experimental Study of Prehension in Infants by means of Systematic Cinema Records*, Genetic Psychology Monographs, vol 10, 1931, pp 107-286, J Allan Hicks, *The Acquisition of Motor Skill in Young Children*, University of Iowa, Iowa City, 1930

It is evident that these adult students of telegraphy and typewriting had previously and incidentally acquired a considerable degree of skill through other motor activities, so that they were "ready" for these new tasks. It is doubtful if children and youths attempt to pick up motor skills on a
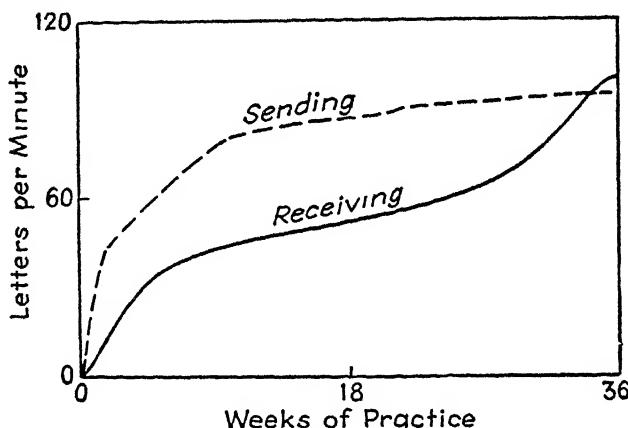
FIGURE XXIV —Improvement in Telegraphy One Individual (Smoothed curve based on Bryan and Harter, *Psychological Review*, vol. 4, 1897, pp. 27-53)

play level for which they are not prepared by earlier experiences Maturation and experience guide a youngster into attainment of skills at his own level. Consequently, it is not necessary to regard the S-shape curve, or any other single curve, as a theoretical norm when in ordinary activity the first phase of the S is commonly cut away by permitting maturation and experience to play their roles.

The latter phase of the S-shape curve does seem to persist in motor skills, producing a "plateau," because the learner approaches the *physiological limit* for his physical status. In some cases a step may be made to a higher limit as in the "receiving" part of telegraphy (Figure XXIV) and in typewriting after the learner has passed through a "critical

stage" (Figure XXV) This improvement in skill occurs often through the introduction of a new technique, as when the telegrapher or typist goes from the stage of dealing with letters one at a time to the acquisition of words or phrases as a
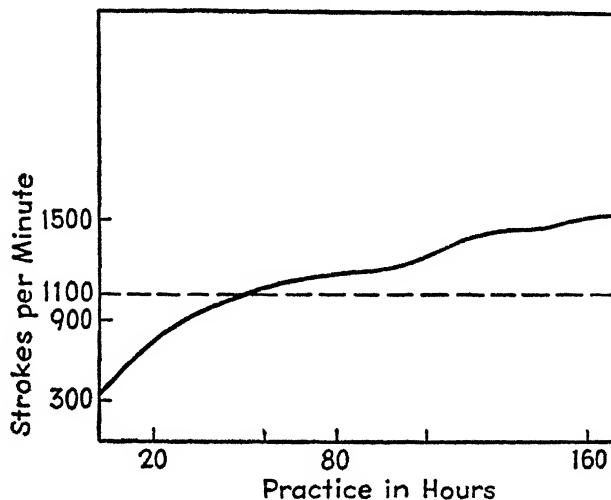
FIGURE XXV —Improvement in Typewriting "Critical stage" above 1100 strokes (Smoothed curve based on William F Book, *The Psychology of Skill*, Gregg Publishing Co, 1925)

unit. The fact that physiological limits occur for every person and that the invention of new techniques and the improvement of the instruments may also be limited does not warrant the conclusion that the learning process in all activities inevitably slows up as it goes on. In some cases, at least, it is conceivable that expert teachers, for example, may also cut off or avoid the latter phase of the theoretical S-curve or even the plateau of the so-called typical learning curve found in the motor field.

When we turn from the motor field to the broader areas of education and of life, we find the accumulated facts and understandings, in such subjects as mathematics, physical

science, and history, and in personal relationships, permit the more mature student to progress more rapidly than he did as a beginner. In cases where the individual's special interests eventuate in a vocational choice on a high level, his rate of improvement may be steady over a long period The young men and women in their twenties who have been progressing steadily in child study through a four-year-course may find themselves learning about children still more rapidly in their first year of public school teaching Nor need their abilities as teachers reach a plateau even after ten, twenty, or thirty years in the profession, if they direct themselves continually to the deeper study of children and youth and to more adequate contact with the resources made available through research and the experiences of other teachers What is true of teaching is more or less the case in other vocations Even though every one of us must reach an upper limit in many activities, such as reading rate, we can develop in ways that make us more effective persons as our interests are broadened and deepened Since this kind of development can go on until decline sets in relatively late in life, it is sounder psychologically to set up a line of *continuous development* as a practical program than to feel that learners are tied down to a theoretical *S*-curve, or to one with the typical plateau, as found in learning telegraphy and typewriting

The conclusion concerning learning curves is *not* that continuous and steady development always occurs, but that learning curves must necessarily have diverse forms. Learning has many patterns and able teachers will be guided by individual potentialities and needs rather than by hypothetical group-curves. (See pp. 169 *ff.*)

Suggestions from Sensory-Motor Learning

While recognizing the limitations and inadequacy of motor learning as the prototype or model of all forms of learning, we, nevertheless, find in motor learning and may summarize some suggestions that are of significance for the individual's development and that are applicable to various areas of learning and teaching In the first place, parents and educators ought to give serious consideration to the advisability of encouraging the development of sensory-motor skills and arts not only during early childhood, but during later childhood, adolescence, and adulthood For many years past, such skills and arts have been and at present are discouraged and sacrificed to make way for a highly verbal and symbolic education This latter form of education still enjoys a position of higher status in school and community and has much more prestige value than the development of skills and even the arts, unless the individual can achieve the higher levels of attainment in the latter. Yet it is widely recognized among child psychologists, and to a lesser extent among teachers, that sensory-motor development and skills can be of considerable significance in providing the person with a better rounded development, equipping him with additional creative resources, and in furnishing further means of attaining satisfactions. It is almost gratuitous to call attention to children's capacities and spontaneous activities in utilizing material resources—crayons, plastics, paints, blocks, sand, cloth, wood, tools, and the like—which promote the development of skills and social competence (when encouraged), and insights as well. Furthermore, to take an extreme instance, the important role of "occupational therapy" is widely recognized in the treatment of the rather seriously maladjusted. It is not to be concluded, however, that the role of sensory-motor skills is restricted to such individuals, for these skills have a place in the development and activities of the well-

adjusted, as well as contributing to the better adjustment of the formerly maladjusted

Studies of skills suggest that their learning must be individualized—adapted to bodily and personal equipment and needs. Since the individual is being continually modified by his own development and behavior, the adult guide, when dealing with children and adolescents, must wait upon indications of appropriate activity resulting from maturation and experience before proposing a new activity. At the same time, the environment must be rich enough to provide stimulation and resources so that development will be fostered and learning encouraged For, once again, it is to be noted that an individual's development, behavior, and learning are the products of the interaction and mutual dependence of a bio-psychological organism growing in certain kinds of environments, social as well as physical

Under the best conditions, as already stated, learning a new activity is an experimental process in which the learner in large measure directs himself. In order that such direction may occur effectively, the learner apprehends the movement and rhythm of what he is doing, and, as a further step, he must perceive objectives clearly and must select them with enthusiasm. Now, although learning does depend in large measure upon the activities and perceptions of the learner himself, other persons can facilitate and speed learning by demonstrating the method of the activity either incidentally or intentionally. Adult guides may even find verbal directions helpful if they are used with discrimination to supplement their own demonstrations and the learner's own efforts During the process of learning and instruction, the social setting may also suggest, directly or indirectly, new objectives requiring skill, and it may suggest the need of or actually provide appropriate tools and materials. Thus the attainment and utilization of sensory-motor skills are at the same time individual and social, requiring an adjustment between

the learner and the more mature and perhaps more specifically purposeful teacher who may guide the learner to the broader significance of skills

Developing Skills in a Democratic Setting

Does the learning of motor skills have anything to suggest for democratic, dictatorial, or other procedures? Obviously, skills and their acquisition are not the peculiar requirements or assets of any one type of society, democratic or otherwise. Skills of one kind or another are essential in every type of social organization, whether primitive or complex; whether fostered for the purpose of social and individual development and satisfaction, whether for the self-aggrandizement of individual or nation; whether for inhuman destruction or humane construction Sensory-motor skills do not, in themselves, produce democracy any more than an excellent physical body is a guarantee that its possessor will not use his physique for destructive purposes. Yet the development of skills can at least be made consistent with democratic living, for teachers and parents have an opportunity to make their approach and atmosphere either democratic or dictatorial in character.

In a democratic setting, the learner is not simply *told* what to do On the contrary, he becomes a willing part of an understood and accepted activity, the teacher's aim being to help the individual develop his capacities and find personal satisfaction in skillful expression. At the same time, the parent and teacher desirous of promoting democratic attitudes will provide opportunities for the development of favorable interpersonal relationships through accepted cooperative undertakings which also contribute to the development of the skill itself A case in point, for example, is the joint enterprise of building a hen-house as part of a nature-study project. Another is the making of a piece of furniture

for the classroom Another is the landscaping of school grounds and nurturing of the planted bushes, trees, and flowers Still another instance is provided by Lewin's experiments, already referred to in the chapter on the "Mature Ten-Year-Old." In fact, numerous skills can be learned while pupils are engaged on large scale projects designed for the general welfare of the community, as was the case in the Parker School District, South Carolina [4] The development of and satisfaction in activities requiring sensory-motor skill can, it is clear, be motivated on a social as well as on an individual basis In short, where an individual learns a skill in a democratic setting, he does so without being ordered about arbitrarily, without being told "yours not to reason why." And, in addition, he is encouraged to see the larger significance of his skill as an instrument for the possible enrichment of the life of his community, as well as its being a means of his own satisfaction and perhaps of earning a livelihood

The student of education should consider the intimate relations of democratic organization to the "activity movement" in the elementary school through which children have been helped in developing emotional stability, social attitudes, and intellectual attainments by being given opportunities to develop their motor skills in informal group projects. Activity programs constitute valuable illustrations of the more democratic learning processes that may come out of retrial in attaining motor skill.

When we interpret democracy as a continual widening of the area of common interests voluntarily shared, we see that a wide range of skills should be included in the repertory of each individual so that he may share freely in the play, the social activities, and in the work of his associates. Each individual, who really promotes the common welfare in a

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[4] George Kent, "Mill Town Miracle," *School and Society*, 1941, vol 54, no 1389, pp. 81-85

complex society, will also need to possess specialized skills
in his own vocation or profession Since modern industrial
society changes so rapidly in its processes and techniques, it
is fortunate that skill in one activity may contribute sub-
stantially to those of a new job. The educator who looks
forward to the needs of the members of a modern, demo-
cratic community will be concerned that *all* the children of
all the people have the opportunity to develop skills which
their interests and capacities indicate they should undertake,
and that they acquire sufficient training in the use of many
tools and materials, besides pencils and pens. Healthy physi-
cal growth, strong and supple muscles, and "handiness" with
tools and materials are basic essentials in intellectual and
social development, as well as a foundation of practical life
Skill in drawing, for example, might become as universal a
means of social communication and intellectual stimulation
as the more common skills of speech, reading, and writing
The era of exploration into the possible contributions of
"retrial for motor skill" to human development and living
has scarcely opened.

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XV

INSIGHT THROUGH VISUAL SURVEY

THE NEXT step in the approaches to learning, beyond retrial for attaining motor skill, toward higher forms of intelligence takes us into insight through visual survey Here one finds the learner seeing a roundabout or indirect way to his objective, whereas in gaining a motor skill he saw his way directly to the objective by means of the skill A simple illustration will clarify this distinction between the direct and indirect approach to an objective.

An Experiment Demonstrating Insight

As reported by Kohler, a little girl of fifteen months, who had learned to walk alone a few weeks before, was brought into an enclosure, about six feet long and four and one-half wide, surrounded on three sides by a fence (See Figure XXVI) An attractive toy was placed as an objective on the opposite side of the fence where the little girl (L) could see it. At first, she pushed against the fence toward the toy, "then looked around slowly, let her eyes run along the length of the fence, suddenly laughed joyfully, and in one movement was off on a trot round the corner to the objective " [1]

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[1] Wolfgang Kohler, *The Mentality of Apes,* Harcourt, Brace and Co , New York, 1927, p 14

If this little girl had been placed several feet away from the toy with no obstacle such as the fence intervening, she would have used her walking-trotting skill to reach the objective *directly*. If the event had occurred a few weeks earlier,
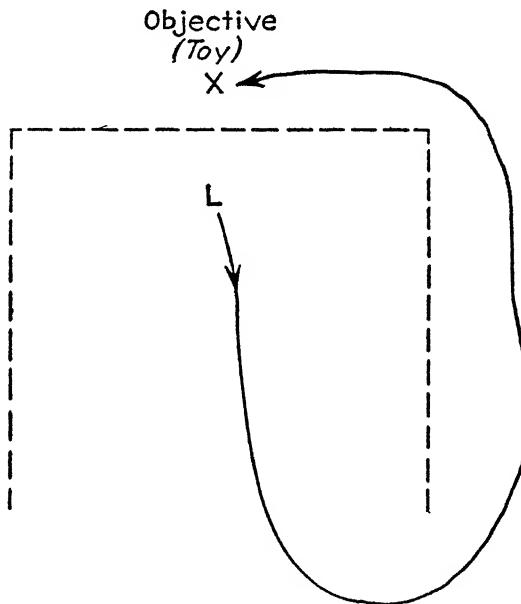
FIGURE XXVI —Indirect Route Followed by Fifteen-Month-Old Girl in Reaching an Objective (From Kohler, *The Mentality of Apes*, p 15)

the attainment of these locomotor skills might have been a significant part of her advancement toward the objective. Some months later she might have reached the objective *directly* by climbing, and several years later even jumping over the fence. With the situation as described she discovers, through seeing, a new *indirect* route appropriate to her present skill in walking or trotting Psychologists call this sudden visual discovery of a roundabout method of reaching an objective—a flash of "insight." In the present discussion we shall call this approach to learning, "insight through

visual survey," recognizing that it is within the ability of the higher animals as well as of children and adults In this chapter's discussion we shall make little use of the rather widespread application of the term "insight" to thinking by means of words and other symbols.

Animal Experiments Demonstrating Insight

Further illustrations from the work of Wolfgang Kohler, who has been a major contributor to our understanding of Gestalt [2] psychology, will amplify the significance of this approach to learning. During the years 1913-1917, Kohler experimented with chimpanzees at the Anthropoid Station in Tenerife, one of the Canary Islands off the northwest coast of Africa. Here under climatic conditions appropriate for them, the members of the group from this very intelligent species of apes engaged in many activities that reveal clearly certain aspects of learning that occur commonly in higher animals including man. As we shall see, these problem-activities requiring insight are considerably advanced beyond the mere manipulation of objects: such as picking up sticks and stones, carrying them about, perhaps throwing them, or aimless pounding and handling

In any roundabout movement, such as that of the little girl described above, part of the route that is *away from the objective* seems irrelevant, unless it is apprehended in relation to the goal in view or the purpose of the task. It is a move which the individual is unable to make if he lacks the necessary maturity or competence for the solution of the problem; and his inability to make the move is due to his failure to apprehend its relevancy. This principle needs to be remembered as we go from our first illustration to the

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[2] *Gestalt* is a German word best translated as "configuration" or "pattern " The term signifies the *integration* of the members or elements of a situation, as contrasted with simple summation

second that involves the use of an implement. When the learner turns aside from his goal to pick up a tool or an implement that will aid in the solution of his problem, he is making a detour which psychologically is similar to starting on a roundabout course to avoid an obstacle in one's path to an objective.
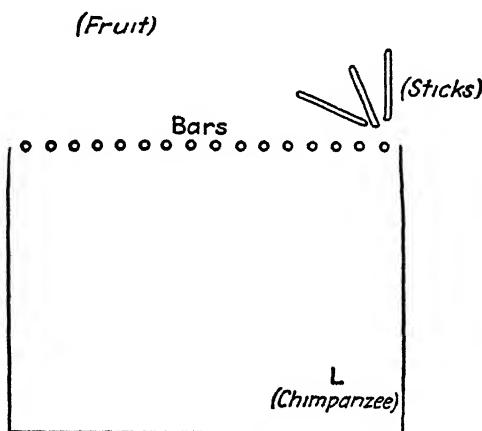
FIGURE XXVII —A situation in which the chimpanzee must show insight in solving the problem (Based on Kohler, *The Mentality of Apes,* p 31 *f*)

Kohler set up a learning or "insight" situation as follows: Tschego, a full-grown female chimpanzee, is let out of her sleeping-place into the barred cage in which she spends her waking hours. Outside the cage somewhat to one side, but near the bars, are several sticks. (See Figure XXVII.) Kohler gives the following description of Tschego's procedure. "Tschego first tries to reach the fruit with her hand; of course, in vain. She then moves back and lies down; then she makes another attempt, only to give it up again. This goes on for more than half-an-hour. Finally, she lies down for good, and takes no further interest in the objective. The sticks might be non-existent as far as she is concerned, al-

though they can hardly escape her attention as they are in her immediate neighborhood But now the younger animals who are disporting themselves outside the stockade, begin to take notice, and approach the objective gradually. Suddenly Tschego leaps to her feet, seizes a stick, and quite adroitly, pulls the bananas till they are within reach In this manoeuvre, she immediately places the stick on the *farther* side of the bananas. She uses first the left arm and then the right, and frequently changes from one to another." [8]

This account describes the learner, Tschego, as attempting at first a *direct* approach to the objective. The threat of competition of the younger animals may be regarded as increasing Tschego's motivation; but certainly the possibility of competition does not in itself produce the animal's "insight." It seems that *suddenly Tschego sees a stick as extending out to the bananas* instead of merely lying in place. Kohler observed that this apprehension of the stick in the new position as an implement in relation to the objective does not occur unless the learner is in a position where both implement and objective can be seen at the same time In the diagram above, the learner (L) is located in such a position as to render the visual reorganization possible The placing of the stick on the farther side and the use of either hand indicate that the solution is neither a matter of "chance success" in random action nor a narrow highly specific physical habit or reflex using only one part of the body. Rather it is a coordinated use of the whole body in appropriately skillful ways *plus* a reorganization of the situation that we call "insight" and recognize as intelligent.

Nueva, a female chimpanzee, who like Tschego had never seen other apes use sticks as raking implements, was tested only three days after her arrival at the experiment station She had not even had the privilege Tschego had enjoyed of

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[8] Kohler, *op cit*, pp 31 *f*

observing the activities of the younger apes and thereby possibly learning something through their demonstrations "A little stick is introduced into her [Nueva's] cage, she scrapes the ground with it, pushes the banana skins together into a heap, and then carelessly drops the stick at a distance of about [two and one-half feet] from the bars. Ten minutes later, fruit is placed outside the cage beyond her reach She grasps at it, vainly of course, and then begins the characteristic complaint of the chimpanzee she thrusts both lips—especially the lower—forward a couple of inches, gazes imploringly at the observer, utters whimpering sounds, and finally flings herself on to the ground on her back—a gesture most eloquent of despair [and frustration], which may be observed on other occasions as well Thus, between lamentations and entreaties, some time passes, until—about seven minutes after the fruit has been exhibited to her—she suddenly casts a look at the stick, ceases her moaning, seizes the stick, stretches it out of the cage, and succeeds, though somewhat clumsily, in drawing the bananas within arm's length. Moreover, Nueva at once puts the end of her stick behind and beyond the objective, holding it in this test, as in later experiments, in her left hand by preference. The test is repeated after an hour's interval, on this second occasion, the animal has recourse to the stick much sooner, and uses it with more skill, and, at a third repetition, the stick is used immediately, as on all subsequent occasions. Nueva's skill in using it was fully developed after very few repetitions " [4]

As in Tschego's case, Nueva at first tried the direct approach, gave up after a number of vain attempts, then suddenly saw the stick in the new relation to the objective and used it immediately It is to be noted also that repetition of the solution indicates that after one or two trials complete insight is achieved, so that thereafter the tool is used imme-

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[4] *Ibid ,* pp 32 f.

diately without hesitation The motor skill required in the activity comes to full development a little later. In general, insight through visual survey is characterized by sudden and complete learning, whereas motor skill comes more gradually, although on some occasions one feels he has suddenly grasped the "knack" of a complex skill in which he has been experimenting.

Further light upon the nature of insight as shown in the use of implements comes from another illustration This time the objective is fastened at a height above the ground beyond the reach of the chimpanzees The problem is for the animal to *see* that a box can be used as an implement to bridge the distance. Kohler states that all sticks should be removed before this test is undertaken, if their use is already familiar, for the possibility of using old methods generally inhibits the development of new ones The six young animals of the station colony were enclosed in a room with perfectly smooth walls (which prevent the use of roundabout climbing routes commonly adopted by the chimpanzees), and with a roof—about six and one-half feet high—that they could not reach A wooden box, about 20 by 16 by 12 inches, open on one side, was standing in the middle of the room with the open side vertical and in plain sight. The fruit was nailed to the roof in a corner about eight and one-half feet distant from the box Kohler vividly describes the situation thus· "All six apes vainly endeavored to reach the fruit by leaping up from the ground Sultan [a young male] soon relinquished this attempt, paced restlessly up and down, suddenly stood still in front of the box, seized it, tipped it hastily straight toward the objective, but began to climb upon it at a (horizontal) distance of [about two feet], and springing upwards with all his force, tore down the banana . . from the momentary pause before the box to the first bite into the banana, only a few seconds elapsed, a perfectly continuous action after the first hesitation. Up to that instant none of the

animals had taken any notice of the box, they were all far too intent on the objective, none of the other five took any part in carrying the box, Sultan performed this feat single-handed in a few seconds " [5] (See Figure XXVIII)
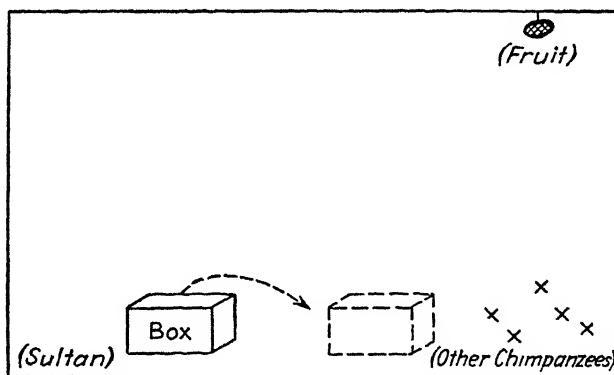
FIGURE XXVIII —Another situation in which the Chimpanzee must show insight This problem is similar to the one represented in Figure XXVII *if* the Ape gets into a position from which the tool (box) is within the same visual range as the fruit (Based on Kohler, *The Mentality of Apes*, p 39 *f*)

As in previous examples, the experiment began with vain direct attempts by the learners to reach the objective. Sultan must be given credit for intelligence higher than that of the others because he was the first to give up the unsuccessful direct approach; and his subsequent behavior in other experiments also indicates that he was more able than most of his companions. His restless pacing presumably brought him by chance into a position where he saw the box and fruit at the same time. The moment of hesitation indicated the coming of a new view of the whole situation—the occurrence of insight—in which the box was apprehended as a stepping block in a position under the objective. As in the case of the little girl who ran around the fence for the toy, and as in

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[5] *Ibid*, p 40

the cases of chimpanzees, Tschego and Nueva, who used the
stick as a rake, so Sultan suddenly changed his whole pattern
of behavior after an inclusive survey of the situation. Fur-
thermore, the one trial or experience of insight produced
full learning without any necessity of repetition. This was
shown by Kohler's report that on the following day in a simi-
lar test, when the box was placed as far from the objective as
available space permitted—about sixteen feet—Sultan soon
grasped the situation, took the box, pulled it along until it
was almost directly beneath the bananas, and jumped. The
old principles of repetition and piece-meal learning seem
quite inapplicable to these examples of learning by insight
following visual survey and apprehension.

Another experiment extended the degree of "roundabout-
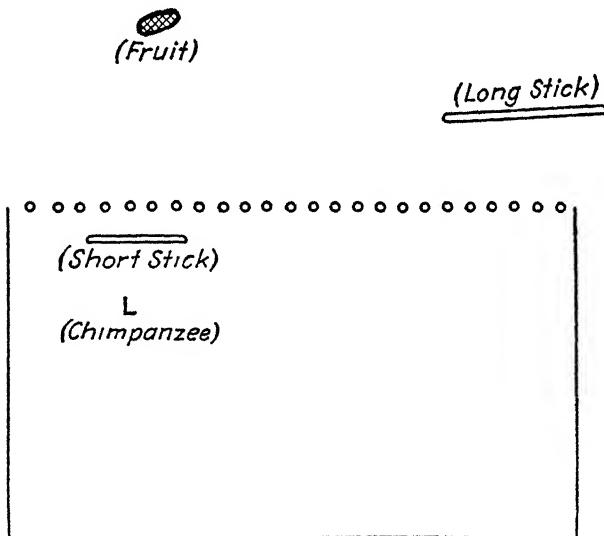
FIGURE XXIX —A situation in which the required "round-
aboutness" and insight are increased, because the ape
must use one implement (short stick) with which to get
the long stick necessary to pull in the fruit (Based on
Kohler, *The Mentality of Apes,* p 175)

ness" by requiring that the learner turn aside to pick up one implement with which to obtain a *second* implement which, in turn, becomes the means to the objective. This situation is not unlike playing checkers or chess wherein the intelligent player must foresee a series of "moves" to reach his objective Nueva sat in the cage while a short stick was placed on her side of the bars, exactly opposite the fruit, which was too far out to be reached with this short stick. A longer stick was placed outside the bars, near enough to be reached with the shorter stick, and about five feet to one side. (See Figure XXIX) Nueva, being ill and weak at the time, soon gave up her efforts when she could not reach the fruit with the short stick. "Then some specially fine fruit was added to the prize, and she approached the bars once more and gazed around. Her eyes fixed themselves on the larger stick; she took the little one, drew the larger within reach and secured the fruit." [6] The success and difficulties of the several chimpanzees with this problem suggest the possibilities of intelligent comprehension of a whole situation involving many factors through a visual survey.

While it is evident that the gastronomical satisfaction of chimpanzees in getting bananas is sufficient motivation, and that this motivation or "effect" is an integral part of the purposeful act of insight, a deeper aspect of motivation is revealed in another of Kohler's more difficult problems presented to the brilliant Sultan. Instead of merely *using* the implement, the ape must now *make* an implement in that he must combine two short sticks to make the longer implement required for raking in the objective.

Sultan is given two hollow, but firm, bamboo rods. The one is so much smaller that it can be pushed in at either end of the other quite easily. Beyond the bars lies the fruit, just far enough away that the animal cannot reach it with either

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[6] *Ibid*, p 175

rod alone, the rods being about the same length Neverthe-
less, Sultan makes a strong effort to reach the fruit with one
stick or the other, even pushing his right shoulder through
the bars For over an hour he continued his attempts, en-
couraged by the fact that he could *almost* reach it, and by a
pseudo-solution in which he pushed one of the sticks out
with the other and thus touched the fruit, but he had not
put the sticks together as an effective unit. Sultan also pulled
a box up to the bars, only to push it away again when he saw
it was really an obstacle. Kohler tried to aid the ape by
throwing the sticks back into the cage after Sultan had
pushed them out of reach Finally, Kohler put his own finger
into the opening of a stick under the animal's nose without
producing any apparent result At last Sultan gave up his
attempts altogether as though he would not try again

But within five minutes a new form of action had begun.
The report of the observer runs· "Sultan first of all squats
indifferently on the box, which has been left standing a little
back from the railings, then he gets up, picks up the two
sticks, sits down on the box and plays carelessly with them.
While doing this, it happens that he finds himself holding
one rod in either hand in such a way that they lie in a
straight line, he pushes the thinner one a little way into the
opening of the thicker, jumps up and is already on the run
towards the railings, to which he has up to now half turned
his back, and begins to draw a banana towards him with the
double stick . . . one of the animal's rods had fallen out of
the other, whereupon he connects them again. . . . Sultan is
squatting at the bars, holding one stick, and, at its end, a
second bigger one, which is on the point of falling off It
does fall. Sultan pulls it to him and forthwith, with the
greatest assurance, pushes the thinner one in again, so that it
is firmly wedged, and fetches a fruit with the lengthened
implement But the bigger tube selected is a little too big,
and so it slips from the end of the thinner one several times;

each time Sultan rejoins the tubes immediately by holding the bigger one towards himself in the left and the thinner one in his right hand and a little backwards, and then sliding one into the other. The proceeding seems to please him immensely, he is very lively, pulls all the fruit, one after the other, toward the railings, without taking time to eat it, and when I disconnect the double-stick he puts it together again at once, and draws any distant objects whatever to the bars." [7]

This last sentence of the report reveals a kind of motivation that can come only in the higher approaches to learning. The learner feels a sense of achievement in having discovered a new method of solving problems, so that other, even strong, objectives—such as eating—take second place. The parent or teacher who provides a situation in which strong motivation becomes an integral aspect of activity and discovery has gone far beyond the interpretation of the "Law of Effect" or of "Satisfaction" that calls for the mere *attachment* of rewards or punishments to learning activities

When the double-stick test was tried next day, Sultan began by pushing out the one stick with the other to touch the fruit, which is in practice useless, but after a few seconds, he took up both sticks, quickly put one into the other, and attained his objective with the double stick. Apparently, learning by insight carries with it more probability of remembering than does pseudo-mechanical repetition that has little meaning. Furthermore, insight achieved with the double-stick proved to be sufficient basis for a more rapid making of a still longer jointed pole out of three sticks when the objective was placed still farther from the bars. The ready reapplication and extension of the learning to new, but similar, situations suggests that effective teaching comes through giving learners opportunity for intelligent action within their range of apprehension.

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[7] *Ibid,* pp 127 f

This description of insight experiments with chimpanzees has been carried far enough to demonstrate clearly that learning may occur suddenly through visual survey of the situation but without the use of language—the tool of human thinking These animals are, as Kohler points out, well suited to experimental studies involving insight; for the laboratory chimpanzees do not already possess a repertory or set of fairly well established methods of acting in problem-situations. Human adult subjects, by contrast, do have such sets of methods whose origin it is not easy, nor even possible, to discover. In human subjects, both adults and children, there are not only greater individual differences in abilities and past experiences, but it is much more difficult to control or gauge motivation and interest, both of which affect performance. In the case of controlled chimpanzees, however, it is much easier to observe the development of methods employed in solving problems Now, while children are not as satisfactory experimental subjects, for reasons stated above, they are, nevertheless, better subjects than adolescents and adults, for the development of their methods of solving problems appears in experimental settings We now turn, therefore, to some observations and experiments with young children.

Children's Insight in Non-experimental Situations

One author reports numerous activities of young children behaving *spontaneously* in a great variety of situations, confronted by problems and solving them in ways indicating visual survey and insight. Two illustrations will be given.[8] Two boys, four years of age, "wanted to drag some logs of wood from one side of the garden to the other, they took walking sticks and hooked them into projecting branches on

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[8] Susan Isaacs, *Intellectual Growth of Young Children,* Harcourt, Brace and Co , New York, 1930, pp 121 and 123

the logs, and dragged them, with much pride." Another boy, also four years of age, "wanted water for his garden, and there was some in a leaky barrow. He put a pail under the barrow and asked Miss C to 'make it run through' She said, 'How?' 'Tip it,' he replied. He watched it with great delight, saying, 'See the water running' Miss C said, 'The barrows's too heavy to hold' He brought a brick and fixed it under the wheel so as to keep the barrow tipped But not all the water ran out, so he said, 'Tip it some more,' and brought a second brick to hold it at a sharper angle."

Children's Insight in Experimental Situations

In 1928, shortly after Kohler's experiments had been translated into English, Alpert conducted a series of formally organized experiments with young children in which toys were substituted for fruit as objectives. In place of bamboo sticks the children used a broom or a yardstick as an implement, while a small chair or a block became a substitute for the chimpanzee's boxes [9] Due to several factors, these experiments did not throw as clear light upon the insight processes of pre-school children as the student of Kohler's reports might expect In the first place, many of these children, like children nearly everywhere, had early learned to move a chair beneath some shelf where a treasure had presumably been put beyond their reach, and had perhaps learned to rake a "lost" ball from beneath the porch. With a multitude of such opportunities and the possibility of learning by demonstration, which may be greater in man than in apes due to man's superior biological equipment of brains and to his use of language at an early age, the probability of observing the *first* attempt of children in such fields of learning is

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[9] Augusta Alpert, *The Solving of Problem-Situations by Pre-School Children*, Contributions to Education, Teachers College, Columbia University, no. 323, 1928

seriously limited Those children who had previously acquired insight in the use of such tools readily applied these abilities to Alpert's problems.

Other factors that interfered with insight upon the part of some of Alpert's children lay in the social-emotional field Not only were the children, like the apes, often discouraged by their own failures, but some children wept, while others became sullen or indifferent even before they tried to solve the problems that confronted them. Other children, whom Alpert classified as socially and emotionally immature, *talked* about the objective or something irrelevant before entering into any active attempt to solve the problem. Among the causes of failure listed by Alpert are self-consciousness, lack of confidence, lack of interest, and excitability. These emotional behaviors of some children are, however, additional evidence of the fact that in any learning situation the "whole child" is involved, and not his intelligence alone. The differences in social and emotional behavior were probably due in part to individual variations in developmental rate, with the result that some of the children, being confronted by a too difficult problem, reverted to a relatively immature form of emotional response. Some of the other children, though mature enough in respect to intelligence, might have been following an emotional pattern of behavior developed through their experiences—whatever the reason. In spite of the various kinds of emotional interference, the author of this study with children concluded that, "No matter what the type of response, it culminates in a solution only if the subject has gained insight into the problem-situation."

Matheson,[10] also in a study with children, found some interesting results which, superficially, might appear to be perplexing When confronted with the problems, the children, in an appreciable number of instances, turned to the experi-

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[10] Eunice Matheson, "A Study of Problem-Solving Behavior in Pre School Children," *Child Development*, 1931, vol 2, pp 242-262

menter to ask for help The number of responses attended by requests for help increased as age increased two-year-olds, in about seven percent of the responses, three-year-olds, thirty-three percent; four-year-olds, fifty-nine percent At the same time, however, the experimenter found that there was a fairly high relationship between success, on the one hand, and chronological age and mental age, on the other For example, among the three-year-olds, in twenty-six percent of the problem situations, solutions were achieved, among the four-year-olds, sixty-two percent of the problem-situations were successfully solved. Among those having mental ages of three years, in only thirty percent of the situations were the problems solved successfully, whereas among those having mental ages of six years, the problems were solved in eighty-eight percent of the instances.

These data of success and failure and the requests for aid, as found by Matheson, indicate that the problem-situations were too difficult for many of the children at the four-year level and for the very large majority of children of the younger age-groups. The fact that requests for assistance increased with age suggests also that an increasing proportion of older children had some but only incomplete understanding of the problems. Yet they had sufficient understanding and motivation to want to carry the problems through to completion. In other words, as the experimenter herself concluded, understanding of solutions may exist in varying degrees; with the number of partial solutions increasing as age increases, until an age level or ability level is reached at which complete solution is possible. Partial solutions, however, do not have the learning and emotional values of problems that can be brought to a complete, successful, and satisfying termination.

There are several other possibilities suggested by Matheson's observations and results. The frequent requests for help, and some of the failures, suggest that as a result of pre-

vious unwise adult direction many of the children had become emotionally dependent upon others, with this dependence being accompanied by feelings of incapacity (also noted by the experimenter) It is also possible that some of the children had learned to substitute language in place of careful visual survey of the problem, survey such as might result in insight concerning a roundabout, tool-using pattern of action.

Insight Compared with Trial-and-Chance Learning

The value of the insight type of learning situation stands out clearly when it is compared with the trial-and-chance success situation In the situation requiring and providing the opportunity for insight, all the essential features are in plain view—the banana, the short stick, and the long stick, for example. On the other hand, in the trial-and-chance-success situation, some of the essential features are hidden or involve complicated combinations. For example, a puzzle-box may be opened by pulling a cord which runs from a bolt over the top of the cage to the rear so that it is difficult for the animal to see and perhaps impossible to apprehend the connection between the hanging loop and the movable bolt Likewise, in the usual maze employed in animal experiments, the course of movement is almost completely hidden When, however, even white rats were presented with alternative routes *that they could see,* the resultant behavior was more looking, less wandering, no repetitions of random unsuccessful efforts, but more appropriately directed, perceptually guided action [11]

From a comparison of the chance with the insight type of experiment, teachers may learn to present to children tasks

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[11] See, for example, Norman F R Maier, *Reasoning in White Rats,* Comparative Psychology Monographs, vol 6, no 3, The Johns Hopkins Press, Baltimore 1929

that do not confuse them but that still require the learner to reorganize the situation for himself. Of course, the possibilities of insight depend upon the learner's own ability and background of experience as well as upon the objective situation. Even a dog that is familiar with a certain building and set of fences and gates will more readily find a roundabout way to a new objective on the other side of the fence than if he is unfamiliar with parts of the situation that he cannot see. Whether or not a youngster is ready to show insight in a certain construction project or in an original problem in geometry, for example, will depend upon his previous insights developed in the use of tools and materials and geometric forms, and upon how well the problem is defined. But, we repeat, it is not insight alone nor any other intellectual process alone that determines the effectiveness of learning The emotional and social aspects of an individual's development may contribute initiative, incentive, a feeling of belonging in the group, and of confidence in the teacher. These factors, together with other personal conditions, make the difference between effective and ineffective attempts to learn—even to the extent of complete frustration in extremes.

The relationship of the teacher to the learner in insightful experiences seems less direct than in retrial for skill. In the former the teacher sets up a situation and invites the learner to look it over, while in the latter he may come closer to the learner by saying, "Watch me, and do as I do," although he realizes that the actual learning still depends upon the learner's own activities. If the teacher should at first demonstrate the reorganization involved in an insight situation, many values would be lost, especially the motivation that arises from creative action and leads to the willing and intelligent attack upon more difficult problems. If a learner depended upon the teacher for demonstration of insight, the learner's grasp of the situation would probably be much less adequate and less satisfying than if he had achieved and ex-

perienced the insight for himself In other words, the insight type of learning situation encourages independence in the learner and requires that the teacher's guidance be less direct The teacher, however, must arrange the learning situation in such a way that insight is possible for the intended
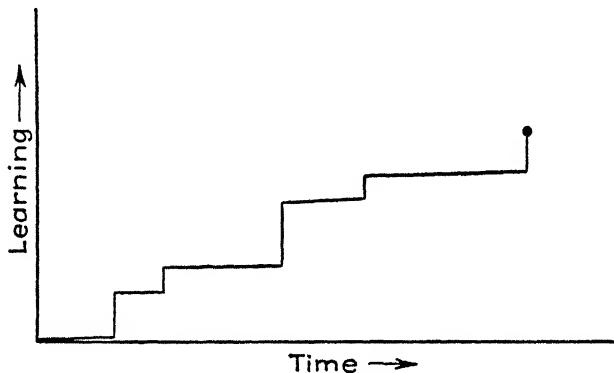
FIGURE XXX —Hypothetical representation of insightful learning through a series of sudden jumps in accomplishment (vertical lines) following periods of exploration (horizontal lines)

learner. This means, of course, that problems and learning situations must be "scaled" to the intended learner's abilities and experiences.

As in the acquisition of motor skill, insight in a specific case apparently contributes to further insight in situations that are similar. At this point insight contrasts with the *blind* learning of trial-and-chance success as exemplified in the cat which had learned to escape by pulling a loop that hung in a given place in the puzzle-box. On a later occasion, however, when placed in a puzzle-box that had a loop hanging in a different position, the cat first would paw at the place *where the loop had been* originally, though none was there [12] Shall we conclude from such an experiment, that the learner is "dumb" in his approach to a situation of this kind, or that

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[12] Edward L Thorndike, *Animal Intelligence*

the teacher has no insight concerning the learner's capacities and the kind of learning situations to be arranged?

If we were to draw a graph to represent progress in learning by insight, it might resemble a series of steps in which the vertical lines represent the flash of insight—the jump in accomplishment—while the near-horizontal lines represent the intervening periods in which the succeeding situations were being explored. (See Figure XXX) The series of steps themselves constitute as a whole a continual upgrading, so that the student may conclude that learning of the insight type goes forward continually and by appreciable jumps The time intervals between insights may vary greatly, while the "intellectual height" of the insight jump may also vary considerably Perhaps during the periods of time represented by the near-horizontal lines, there occur intellectual changes, especially in human learning, that cannot be measured or observed until manifested in later behavior.

Insight at the Language Level

One of the most significant contributions to our understanding of intellectual development comes from the place occupied by "insight through visual survey," as an approach to learning, namely, *between* "retrial for motor skill" and "reflective thinking," the latter of which depends upon human language. Here on the visual level—without the aid of speech—the chimpanzee, or man's tool-using but speechless precursor, or the non-talking but walking infant of fifteen months may suddenly see a new roundabout way to a goal or discover a mediating tool with which to reach an objective. Intelligence here exists without words; intelligence on the motor skill level is supplemented and coordinated with a kind of behavior which marks a higher level of attainment. The eyes and ears cooperate with the muscles,

skeleton, and brain in effecting greater and greater achievements Before proceeding to learning through language, every teacher needs to explore thoroughly the kinds of learning that can be achieved just below the language level or that can occur even when language is at hand as a secondary tool

While the present discussion of insight has been held to the non-verbal level, the student should be aware that children, adolescents, and adults frequently employ visual insight as one phase of learning in situations in which verbal language has a large place. The reading of maps in the social studies class—whether geography or history is being emphasized—involves much visual insight of relations between obstacles and objectives. A river valley or mountain pass may constitute the roundabout way to an explorer's objective, which is understood through visual survey of a map. The reading of a graph may convey a clear meaning by visual experience that words can suggest only vaguely The beginner in algebra may gain insight concerning the equation, $(a + b)^2 = a^2 + 2ab + b^2$, when shown a geometric illustration, as already indicated in an earlier chapter (page 162). Geometry, in general, offers a good illustration providing opportunities for the development of insight through visual survey combined with the use of symbols

The following experiment also shows the role of visual survey in promoting insight, but it is visual survey of a different sort from that of the chimpanzees and the young children, and indeed different from that involved in the survey of geometric figures It is visual survey of *symbols* themselves, such survey being very helpful in facilitating insight, but not always essential, for one might apprehend the plan through hearing alone. The experiment, briefly stated, follows [13]

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[13] Joy Paul Guilford, "The Role of Form in Learning," *Journal of Experimental Psychology*, 1927, vol 10, pp 415-423

Three groups of number series were arranged as shown below (Each column is only part of a series, but sufficient to reveal the principles involved) It is apparent that the X column has no plan or formal progression. The Y and Z col-

X	Y	Z
3	6	8
4	7	7
8	9	9
11	12	6
20	16	10
25	21	5
30	27	11
33	34	4

umns, on the other hand, are arranged according to definite, though different, forms or progressions The X and Y series were presented alternately to the subjects with instructions to learn them as quickly as they could After each repetition the list was reproduced so far as possible. The subjects were instructed to learn the Z series, but also to look for the form in so doing.

The emergence or discovery of a form or plan definitely facilitated learning. The Y series was learned after an average of 1 4 repetitions, whereas the X series (having no form) required an average of 3 2 repetitions. In the Z series, when the form failed to emerge for the learner, the average number of repetitions required was 4 25, but when the form was apprehended, the average was only 1 4 repetitions—a reduction of two-thirds The apprehension of the form, plan, or progression in this experiment is an instance of insight wherein symbols are employed, to be sure, but their visual presentation facilitated the achieving of insight.

Other examples where visual, insightful experiences are essential include understanding how a motor works, how a chemical change occurs, the nature of physical and biological phenomena It would be well, also, if the phenomena

and principles of social structures, institutions, and problems could be studied visually rather than by means of the common and almost exclusive practice of *reading about* them The whole area of cause and effect relationships not only in physical and biological science but in social relations requires insight through visual survey In fact our entire modern trend toward giving children, and adults as well, first hand experiences by excursions, visits, and observations emphasizes the importance of this visual approach to learning On the other hand, much teaching of history, language, and other subjects has been relatively ineffective largely because of their verbal character and the attenuated and vicarious nature of the experiences the pupils were expected to get

After the student realizes the great contribution visual reconstruction of situations plays in the solving of everyday problems and in the acquisition of complex meanings, it may be safe for him to turn to the broader usage of the term, insight. People commonly use the word, insight, as synonymous with "understanding," even when there is no visual survey or even any extensive employment of visual images We say that we *see through* or *have insight* concerning a business proposition, a principle of economics, an interpretation of democracy, and many another problem that comes to us in verbal terms and is answered in language symbols Such common usage of language—oral or printed—to designate non-visual intellectual experiences is valuable when it serves to remind us how large is the debt we owe to our ability actually to apprehend concrete situations *as if* they were reconstructed. After sufficient emphasis has been placed upon visual experiences, the term insight may be used more broadly to cover the development of insights through hearing and through the use of symbols of many kinds, including words, numbers, and musical notation. As insight designates a more or less sudden reconstruction of relationships, so the

next approach to learning, called reflective thinking, uses words to create new relationships.

Insightful Learning in Democratic Education

Learning by means of insight is consistent with democratic education and living not only in the sense that each individual is encouraged to have his own personal experience with his own eyes and ears, but that he is encouraged to think, explore, discover, and evaluate for himself. Even if the person with quicker insight—higher intelligence—points out or demonstrates a new organization of a situation to his mates, they still may grasp it for themselves, for their insights will rest upon the pertinent facts and elements which they can see and evaluate for themselves This kind of learning is to be clearly distinguished from the comprehension of the words which constitute dogma, absorbed by repetition Thus insight may prove fruitful in promoting both the individual responsibility and the social sharing which characterize modern democracy. Certainly, the attainment of motor skill and of insight through visual survey are approaches to learning that can be coordinated in the life of every child, youth, and adult to make him a more fully developed and intelligently participating member of his community.

Learning with insight is not well adapted to dictatorial methods, for it does not have the rigidity and arbitrariness of conditioning procedures and of pseudo-mechanical repetition. On the contrary, learning with insight is designed to promote originality and resourcefulness on the part of the learner, and to promote in him the feelings and satisfactions which attend learning and achievement under conditions of self-criticism and self-direction.

It is not to be assumed, however, that insightful learning is entirely lacking in autocratic and dictatorial societies. The autocrats *themselves* will seek insights; and they will promote

insightful investigation and learning in limited areas, among their satellites, but only in so far as such investigation and learning suit their design and purposes. But insightful learning will be denied to "the people", for it does not suit an autocratic regime to have an informed and critically evaluating citizenry In fact, the ideal citizen in a dictatorship is an automaton, one who behaves in reflexive stereotypes designed and imposed by the rulers Whereas in a democracy it is desired to promote learning through insight in *every* person for his own development, for the possible contributions his understandings might make to the development of a more wholesome community, and for his enlightened participation in that community, whatever insight is *permitted* in a dictatorship (as in the physical sciences for the development of lethal weapons) is intended for the purpose of facilitating and developing the autocratic and arbitrary design and purposes imposed by those in power

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XVI

REFLECTIVE THINKING

THE USE of language constitutes one of the main differences between "insight through visual survey" and "reflective thinking," just as language marks a fundamental distinction between the most intelligent chimpanzee and the normal, talking three-year-old. As the child learns in his second year to name many objects and actions when he sees them, he also learns to name them *when they are not present.* Thus the oral symbols for "mamma," "milk," and "go riding," soon become substitutes for objects and events, and often become means for producing them The extension of the young child's small set of verbal symbols into a vocabulary including many objects, actions, qualities, and relations is accompanied by much talking to one's self during activity. Eventually, this vocal communication with one's self is reduced to a silent use of words as the main avenue of human thinking. When the child of five faces a problem of the visual-insight type, he may go beyond *looking* for an appropriate tool in view to *thinking* of one which is quite out of sight. His visual images and his verbal symbols broaden the range of his intellectual activity significantly and start him on the road toward "reflective thinking "

Occurrence of a Suggestion

The first forward movement toward the solution of a difficulty through using the tool of language is called "the occurrence of a suggestion " When a person's direct activity is stopped by a perplexing situation, his inclination to continue acting may be diverted as suddenly as in a case of visual insight, and the learner or problem-solver may say to himself, "I will do so and so " But a second suggestion, conflicting with the first, may also come and provide the moment of hesitation in which reflective thinking may get started When action is suspended in this way, a forward movement toward solving the difficulty through reflective thinking may be made by using the tool of language to state more clearly and explicitly the problem faced Words aid us in defining or locating problems, that is, in deciding what we really want to do or find out. Often a confusing situation is partially clarified by the verbal statement of the problem As the person in the difficulty settles down to a thoughtful consideration of his problem, the suggestions that have occurred become definite hypotheses to be considered. Thus the suggestion, which corresponds closely to the flash of insight, is not followed immediately by a reorganization of the pattern of action, but action is held up until the results can be more clearly foreseen.[1]

Reflective thinking and its accompanying insights are characterized, therefore, by additional distinctions from visual insight. If the first suggestion that comes is immediately accepted and the learner goes into action "quick as a flash," he has *not reflected* upon the matter, and his belief that he should act so and so is merely a *snap judgment.* Quick judgments of this sort are not sufficiently safeguarded from error; although they use language, employ some intellectual processes, and may on many occasions solve the problem. The

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[1] John Dewey, *How We Think,* D C Heath & Co , Boston, 1933, Chapter 7

reflective thinker, in contrast, takes time to consider the probable consequences, *after* he gets a new suggestion or hypothesis, and before he begins putting into action the method suggested. To quote John Dewey, one of the deepest students of the thinking process "Active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends constitutes reflective thought "[2] Language *makes possible* such a following through of the suggestion without moving our bodies perceptibly, but the possession of language does not guarantee reflective thinking A person might have a wide vocabulary and still never get beyond snap judgment Every child has to *learn* to stop and think in the midst of the on-going action with which he is so much concerned.

The jump from a difficulty to a suggestion does not follow any rule that guarantees its efficacy. Just as an ape or a child may make the error of picking up a box when he needs a stick to solve an insight-situation, so a language-using human being may get many a verbal suggestion that turns out to be of little or no value in reaching the solution. Like the flash of insight in a visual situation, the suggestion in a situation that requires thought concerning aspects not in view comes as a spontaneous, creative reorganization which is genuinely *new* in the same sense that the problem situation is new. Any thinking, therefore, whether it concerns the construction of a building, the organization of a business venture, the modification of a problem-child's development, or the planning of a mathematics lesson, may run into error as a new idea comes. On the other hand, these new, untried ideas or suggestions are the materials that make progress possible. Consequently, suggestions should be tested in action, if possible, before they are finally adopted.

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[2] *Ibid*, p 9

Considering the Suggestion

Between the moment when a new suggestion comes and the time of its actual practical testing, there is a period of time devoted to "the consideration of the grounds that support it and the further conclusions to which it tends." For example, take the case of a nine-year-old boy in the fourth grade who shows no interest in his school work and is reported as "lazy." The problem may be stated "How shall Joe be cured of his laziness?" Even the teacher who is a student of child development may have the erroneous momentary suggestion "He was born that way and cannot be cured"; but familiarity with the facts of heredity as related to such a trait and with numerous case histories of "laziness" leads to the immediate rejection of this easy answer. Search for an *adequate* answer indicates that the teacher is thinking reflectively. Looking more closely at the boy, the teacher notices that he appears thin and lacks color. From this observation the teacher *infers* that the boy is perhaps undernourished or does not have sufficient sleep, or is suffering from some ailment. Such an inference has been called the "explanation" aspect of reflective thinking, whereas the actual looking or observation is called the "scrutiny" aspect [3] These two aspects supplement each other as the teacher takes time to explore the bearings of the several suggestions as they come along.

The next step in this case is to visit the home in order to scrutinize and thereby check upon the suggestion of undernourishment, lack of rest, and other factors. The home visit and other indirect information, which all fall under the head of further "scrutiny," indicate, however, that Joe has regular and adequate sleeping hours and at least an opportunity to eat a variety of nourishing foods. But during the

[3] Boyd H Bode, *Fundamentals of Education*, The Macmillan Co, New York, 1921, Chapter 6

visit the teacher observes that Joe has a "nagging" mother.
Consequently, the explanatory suggestion occurs that Joe's
laziness is derived from certain complex emotional attitudes
arising in part out of the home situation and supported in
part by the assignment of inappropriate school tasks After
further scrutiny of the situation at home and at school, and
after the investigation of the beginnings of Joe's laziness in
the previous school grade, the teacher is able to formulate a
tentative conclusion consisting of a change in the treatment
of Joe at home and at school Such a tentative conclusion
may be put in the form of a prediction "If we do so and so,
then so and so will occur." The prediction is verified if, with
the co-operation of his parents, Joe's laziness is cured by the
new regime.

In such ways the problems of parents and teachers in the
development of children as well as the problems of farmers,
businessmen, housekeepers, professional men, and govern-
ment officials may be solved through the interplay of "scru-
tiny" revealing facts and of "explanation" creating inferences
when time is taken for reflective thinking followed by prac-
tical tests. If the tests turn out unsatisfactorily or badly, then
we are forced to further thinking, further thinking in the
light not only of our original facts, suggestions, and predic-
tions, but *plus* the observations we have made while testing
our first hypothesis. This fundamental principle of testing a
principle or an hypothesis by the practical consequences of
putting it to trial is called the "pragmatic" test of truth as
distinct from the claims made by certain systems of philoso-
phy that "absolute" truth is derived from sources outside of
human experience.[4]

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[4] Horace M Kallen, "Pragmatism," *Encyclopedia of the Social Sciences,*
edited by E R. A Seligman and Alvin Johnson, The Macmillan Co , New
York, 1937, Vol XII, pp 307-11, Boyd H Bode, *How We Learn,* D C Heath
and Co , Boston, 1940, Chapters 14 and 15, M C Otto, *The Human Enter-
prise,* F S Crofts and Co , New York, 1940, Chapter 10

Examples of Young Children's Thinking

Although young children often do not employ all the aspects revealed in the analysis of reflective thinking, it is well recognized that children do begin very early to make verbal statements that reveal the developing ability and inclination to intellectualize their problems. A few examples will make this fact clear.

Ursula, who had just passed her fourth birthday, made a cause and effect statement that answered a "why" question of her own.

> Ursula "Do you know why I can't sleep at night, Mummie? Shall I tell you? It's because I think of things" Mother "What things? Will you tell me?" Ursula "Oh, well, once I thought about pigs" Giggling, "About pigs!" "Then I think about boys and girls and parties and once about school If I didn't think about things, I would go to sleep "[5]

Dennis, who was six years and one month old, added a further consideration in a brief argument.

> This morning going up the hill to school with the boys (Dennis and his brother James, who is about eight years old), their father made the remark (arising out of some joke) that he could run faster than either of them Dennis· "You can't run faster than James" Father: "Of course I can—I'm twice as big as James—and look at the length of my legs" Dennis. (exploding with laughter), "Yes, but you're so much heavier."[6]

Many examples indicating reflective thinking may be cited in the years before children enter the elementary school. Later we find that as children attain the ages of seven and eight, they begin to be considerably more objective in

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[5] Susan Isaacs, *Intellectual Growth in Young Children*, Harcourt, Brace and Co, New York, 1930, p 359
[6] *Ibid*, p 357

their explanations to each other and less inclined to drift off into mere "make believe" Not only are these seven- and eight-year-olds able to perceive more clearly the causal relations they encounter in the social, biological, and physical world that surrounds them, but they are more socially concerned both to learn with understanding and to relate with clarity. Such a social basis gives a sound foundation for individual and group thinking which gradually becomes more complex and is consistently checked with actual objects and conditions,[7] until at ten or eleven the child may do much reflective thinking upon problems that lie within his realm of practical experience.

Thinking and Action

It is clear that as language is an instrument or tool of thought, so thinking may be an instrument to promote action on the levels of childhood, youth, and adulthood. One may stop to think when he encounters an obstacle that lies between him and his objective, whether the obstacle be a physical obstruction, a fork in the pathway, or two or more conflicting suggestions for action. If he does not have or cannot gain the skill necessary to surmount the obstacle, if he cannot *see* a roundabout way to his objective, then he must *think* his way out by means of suggestion, scrutiny, and explanation up to the point of prediction followed by verifying trial. The main purpose is to get on with the action promptly—as soon as a promising proposal is found

A danger to be avoided is the inclination to let thinking become "a thing in itself" leading to no action. Many people toy with a problem too long, enjoying the intellectual process, and as our British friends say, "They miss the bus." The able thinker must judge how long to spend on reflec-

[7] Jean Piaget, *The Language and Thought of the Child*, Harcourt, Brace and Co , New York, 1932, Chapter 3

tive thought in any problem situation, he must be ready to go into action either as a testing process or because such action appears advisable If he spends *too* much time thinking about details and balancing issues, his rate of action is slowed to relative inefficiency. If he does not take enough time to examine suggestions, he will waste his energy in trying useless methods. Between these two dangers lies a path of action guided by judgment based upon a wide view of the consequences of the action proposed.

Unfortunately there has been cultivated and there has grown up a false distinction between the "pure scientist," who is supposed by self-designation to be the thinker, as contrasted with the "technician," who is the doer. Also, most philosophers have retired to the "ivory tower," there to reflect in complete dissociation from "life" itself And they are proud of their dissociation. Fortunately, there are a small minority of philosophers who believe that their reflections should have an application to living, and they act on that belief. In any effective social organization, however, and especially in a democracy, these gratuitous distinctions should be eliminated and thinking should become a function of all persons, so that all "doing" or action may be guided by thought and all thought tested eventually in action.

Thinking Related to Other Approaches to Learning

The instrumental function of reflective thinking means that it must be kept in close relations with its two predecessors in the sequence of approaches to learning Effective action requires both skill and thought, while visual insight becomes the basis for many a suggestion as well as a means of scrutinizing the appropriateness of proposals.

Experimental evidence shows that there are bodily changes during thinking; for example, in pulse, respiration, and psychogalvanic reflex, as well as implicit movements of the

vocal mechanism While such movements are not identical with thinking, these bodily accompaniments demonstrate again that a large part of the organism, or perhaps the total organism, is involved even in the higher psychological processes, including thinking. It is also true that in children speech and expressive movements play a much larger role in thinking at this age than they do in adulthood. As the whole body, including the coordinating brain and nervous system, is a tool of individual action, so the hand and the eye may be considered as peripheral instruments related especially to these interacting approaches to learning re-trial for motor skill, insight through visual survey, and reflective thinking. These three approaches to learning are as intimately related to each other as are the movements of the hands, the guidance of the eyes, and the verbalized thought when a pitcher on the diamond says to himself, "I'll give this batter a low one," after surveying the batter's stance, recalling his weaknesses and strengths, and trying to discern his intentions.

Reflective thinking will tower above skill and visual insight in the intellectual sequence, first, when it builds firmly upon the discoveries made by manipulating and tool-using hands, and by method-finding eyes, secondly, when the use of language, including all forms of human communication —oral, written, and graphic—makes it possible for two persons who are far apart in space and time to transmit much that might be demonstrated or pointed to if they were face to face. Thus the language aspect of "culture" is spread quickly round the world by devices, such as typewriters, printing presses, telephones, and radios. "Culture" is carried down the ages by means of language and other symbols, by drawings on the walls of protecting caves, by sculpture in time-resisting marble, by non-fading paints, by verbal symbols on hard-baked clay bricks, on tough parchment, or on sheets of paper bound in covers, and by photographs, phono-

graph records, and movie reels Thus the area of culture available to a particular human being comes to have new dimensions

If we think of a child growing up in a primitive tribe, his life-space is circumscribed throughout by a limited area of the land that he may walk over—perhaps one ten-thousandth part of the earth's land surface—whereas the modern child can actually see, in the movie travelogue or in the adventure tale, representative pictures of all the variations from East to West and from pole to pole. Likewise, the primitive tribe through its word-of-mouth method cannot with accuracy carry past events that reach beyond a long life-time of perhaps one-hundred years, for not only are events, experiences, and details forgotten, but they actually undergo unconscious distortion when they are apparently retained, and as they are relayed from person to person [8] Modern youth, by contrast, can reach back through written characters on stones and tablets for more than forty centuries. So, figuratively speaking, the relative possibilities of acquaintance through written language and other inventions might be suggested by multiplying the time span of forty centuries by the space span of 10,000 tribal areas Such a comparison of the primitive human being with the modern individual in a complex society like our own represents a tremendous though gradual stride in the sources of suggestions and the bases for creating new inventions and new ideas. This stride is not as great in intellectual significance, however, as is the gradual step from man's ape-like precursor —who had many skills and used sticks, stones, fibers, and clay with insight but who could not talk—to the primitive users of vocal language, who through communication became the forerunners of human civilization The improvement of thinking in the last twenty-five thousand years (be-

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[8] See Frederic C Bartlett, *Remembering*, Cambridge University Press, 1932, *passim*

ginning with Cro-Magnon man, regarded as one of the earliest representatives of *Homo Sapiens*) has depended not upon changes in the inherited potentialities for the development of body and brain of man, but rather upon the invention and development of vocal and recorded language, upon the gradual extension of communication over space and time, and upon the preservation and transmission of knowledge and experience made possible by language. A big international dictionary with its upwards of four hundred thousand words and a world history in every school room might serve in combination as symbols of the significance of language for learning intelligently.

Danger of Verbalism

When the debt of all learners to language is appreciated in some degree, it becomes necessary to re-emphasize the warning that words in themselves do not necessarily carry reflective thought. In the first place they may fall to the low level of pseudo-mechanical repetition and remain meaningless sounds repeated to satisfy the parent, teacher, or preacher Another danger is that words may be conditioned symbols that merely cause emotional reactions of hate, fear, or irrational affection A word, like Fuhrer, may produce any one of these reactions in different individuals instead of being a neutral symbol for making thought precise. Such an emotional reaction may blur or obscure completely the meaning of a statement. A third danger consists in continuing to pile words upon words without making points of reference to concrete objects and events. This danger reached a crucial point in the late Middle Ages under the leadership of the European Schoolmen, who were churchmen. As a reaction against the mere verbalism of these Medieval Schoolmen came the birth of the scientific movement in the sixteenth century.

A brief consideration of the beginning of the scientific method will make clear its great contribution to reflective thinking The dispute, cited by Otto,[9] in an ancient monastery during the year 1432 concerning the number of teeth in the mouth of a horse will illustrate the scholastic method of thought that contrasted so sharply with the scientific. According to a chronicler of the time, learned books were brought out, ancient documents were consulted, erudition was shown the like of which had never been seen in that monastery or the region round about, but the problem could not be solved. At last "a youthful friar of goodly bearing" suggested that they "look into the open mouth of a horse for an answer to their questionings " Instead of accepting this suggestion for trial, the other monks with one accord in great anger threw him out with the comment "Surely Satan hath tempted this bold neophyte to declare unholy and unheard-of ways of finding truth contrary to all the teachings of the fathers " The method of thinking to which the infuriated ones were accustomed consisted of a search for verbal authority, especially in the works of Aristotle, written in the fourth century B C, or in the writings of Thomas Aquinas, the latter two centuries old at the time of this episode

Unfortunately, this attitude and practice of turning to classical authorities is still continued by some today, who deprecate experimentalism especially in the fields of sociology, economics, and politics. These deprecators would still have us turn to Aristotle and Thomas Aquinas for an authoritative answer to our modern problems instead of "looking into the horse's mouth " If no recognized authority has concerned himself with horses' teeth, or whatever the question may be, the scholastics and their modern counterparts say there is nothing to be done Although these schoolmen

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[9] M. C. Otto, *The Human Enterprise,* F S Crofts and Co, New York, 1940, pp 96 *f*

were highly intelligent and no doubt sincere, it seemed impossible for them to escape from a training in thinking that required absolute answers in conformity with some knowledge shown by the "fathers." They were not interested in particular data taken from one horse or from many horses, as is the scientist of today. The young friar's proposal was a creative suggestion which came a century ahead of the scientific movement it foreshadowed.

Beginnings of the Scientific Movement

In the sixteenth century certain thinkers began a cautious but critical examination of the movements and relations of the earth, sun, planets, and stars. Although Copernicus searched diligently in the ancient writings of Ptolemy and other early astronomers, he came to conclusions of his own, which—though published after his death in 1543 as a hypothetical attempt at mathematical calculation—really "swept man out of his proud position as the central figure and end of the universe, and made him a tiny speck on a third-rate planet revolving about a tenth-rate sun in an endless cosmic ocean."[10] For adhering to such mathematical convictions concerning the relative place of man and his Earth in the universe, Giordano Bruno, became a victim of the Inquisition and was burned at the stake in Rome at the opening of the seventeenth century. Only a few years later, however, Francis Bacon, the English philosopher and statesman, in his *Advancement of Learning* (1605), offered a detailed criticism of medieval science setting forth objective experiment as the test of truth and presenting a vision of the scientific task as related to the development of man. In 1637, Descartes, the French philosopher, summed up the matter by pointing out that the logic of the scholastics "served better in explaining

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[10] John H. Randall, Jr., *The Making of the Modern Mind*, Houghton Mifflin, Boston, 1926, p. 226

to others those things that one knows . . . than learning what is new." During the seventeenth century, came the contributions of Galileo, Kepler, Newton, and Boyle in astronomy, physics, and chemistry to enhance man's understanding and control of his environment, while George Harvey cut under man's skin to open a way, by means of knowledge of the circulation of the blood, toward a scientific view of human emotions Students of the twentieth century owe a tremendous debt to the martyrs and workers of the seventeenth who lived and sometimes died that we might think by a new method

Extensions of the Scientific Method

The eighteenth century made another contribution to thinking by insisting upon the right of men to think in new ways concerning the political and social arrangements of their living In the United States and France bloody revolutions marked crises that involved new patterns of thought. Thomas Paine, who participated in both struggles, asserted that each generation had the right to decide its own way of life even if it meant the overthrow of ancient hierarchies Such writings as those of Jean Jacques Rousseau, the French philosopher, on the social contract, of David Hume, the Scot, on human nature, and of Thomas Jefferson, the American, on democracy, typify the extension of new thinking beyond the scientific examination of man's physical environment and his bodily functions to his intellectual and social processes. The eighteenth century marks a forward movement toward thinking concerned with the possibilities of human development on the assumption that *every* individual should be offered optimum conditions for growth—physically, intellectually, and socially—and that personal development depends upon having the social environment under human control.

The nineteenth century in America was characterized by a tremendous extension of scientific method in the physical, chemical, and biological sciences resulting in the production of numerous inventions, new chemical processes, and the improvement of farm crops and farm animals. Meanwhile there grew up an inclination upon the part of scientists to avoid responsibility for any social dangers that might arise from their discoveries. While they willingly took credit as "benefactors" to mankind, research scientists claimed that their function was to find the facts wherever they led, regardless of consequences or uses to which their findings were put The invention of a destructive explosive or a poisonous gas was to the "pure" scientist as worthy an act as the discovery of an anesthetic to relieve pain or of a cure for malaria The direction of research was either left to chance in large measure or was guided by business organizations interested primarily in the possibilities of money profits.

Science and Social Planning

In the field of social investigation the gathering of statistics sometimes showed trends considered undesirable by many persons, but others accepted the trends or polls as indicating a "natural" tendency that should not be questioned In more recent years this inclination to divorce science from social planning and social outlook has met with severe criticism from some quarters, so that today some scientists include within the scope of their thinking a consideration of the *social consequences* of their investigations. In other words, "scientific method" in itself is not broad enough to include all human thinking. For choices must be made between the more and less desirable goals, and "scientific method" does not provide the choice Every scientist is responsible as a citizen, nevertheless, for choosing between dictatorship and

democracy, and it is his responsibility to explore and comprehend the possible social implications of his science.[11]

One of the most important areas for reflective thinking today is provided by the complex problems of human development The guidance of individual children and youths requires consideration of a multitude of factors, continuous experimentation with different personalities, and constant attention to the kind of society in which we live and the improvements we plan to make in that society Neither the goals nor the methods of the past can be followed in detail. Progress depends upon each generation's re-thinking of its human, social problems. As accurate information about physical growth, emotional changes, intellectual processes, and social organization is secured and organized, a basis is built for creative thinking But the work of parents and teachers will always be more or less a venture into the unknown, with possibilities of failure and achievement that are not fully predictable In the field of social development choices must be made, such as that between democracy and dictatorship, the consequences of which can be envisioned only partially—though very much more clearly now than ten years ago—and the values of which have to be judged in terms of human development rather than in terms of any fixed standard.

Individual Progress in Thinking

In the school, thinking begins in the simple play and construction problems of young children, sometimes by individuals acting alone and at other times by small groups using the varied suggestions of its members. In the early years, thinking that produces learning remains close to manual activities and visual insights In the middle grades the

[11] On the application of science to social organization and to various separate social problems, see Julian S Huxley, *Science and Social Needs,* Harper and Brothers, New York, 1935

world outside presents its problems in simplified form through pictures, language, and expanded social relationships Before the junior high school level is reached, the youngsters begin to deal with a larger world through generalized concepts. From that point on, reflective thinking, though not absent previously, becomes a more and more complex process involving more closely defined problems, more numerous suggestions, extended scrutiny accompanied by more acute inferences, and finally prediction with verification, so far as possible, through actual trial. The free use of language by the pre-school child permits him to begin his thinking career at an early age level so that learning through reflective thinking expands gradually with his growth and experience until it may permeate every act of skill and every reconstructive insight. Reflective thinking is the intellectual climax of the sequence which began at a low level of unawareness in conditioning, passed through meaningless-word-repeating that is almost mechanical, then on through mere chance success, until self-guidance in motor skill and in insight through visual survey furnished a basis for the effective use of language in conversation and in thought. Thinking, when traced from its beginnings to its culmination can be described in its development in much the same manner as a biological process of development can be, for example, the stages in the growth of a human being from the fertilized ovum to adult stature.

Thinking and Democratic Living

In a democratic society, the individual, ideally, gets or has access to the facts concerning a variety of problems, he is encouraged to weigh and organize them. Ideally, too, he is encouraged to experiment even in respect to social problems, though it must be recognized at once that even in

democracies there are those who decry social experiment and would be guided entirely by precedent

Citizens of a democratic society are, ideally, educated to recognize a purely emotional appeal, to detect sham, and to know clichés when they hear or see them They will, for example, not be satisfied simply to parrot and accept such unsubstantiated phrases as "the historic fulfillment of mission" (of a given nation); "cultural and spiritual affinity" (as between certain groups and to the exclusion of other groups); "racial superiority" (by self-designation of one or several so-called "races" or nations), "friend of the people" (self-designation by a politician), "that government is best which governs least", nor even "the scientific method" (when simply offered as a phrase without substance), "all women are poor drivers" (according to men), "all delinquents are morons", "what can you expect from a ——?" (Supply your own pet bias) Shams, clichés, and persuasion based on flimsy evidence cannot persist if facts and reflective thinking are permitted to combine in order to reveal the truth, or the closest approximation to it of which we are capable In short, the reflective person is not subjected to nor guided by the tyranny of words

In autocratic, dictatorial societies, by contrast, reflective thinking by the citizenry is suppressed and even punished Indeed punishment is inflicted for "dangerous thoughts" which have been no more than *surmised* by those who would control the behavior and mental processes of the people What little alleged thinking is permitted in such societies is based upon distortions and misrepresentations of facts, very strongly colored by induced emotional bias.

It is obvious that the purposes of education in a democratic society will be markedly different from those in the dictatorial with respect to the kinds of attitudes they seek to develop, with respect to the nature and extent of reflective thinking to be developed, and with respect to the role of

emotion in behavior It is evident that reflective thinking lies near the heart of democratic living Whether we consider the full development of each individual as the goal of democracy, or the widened sharing of experiences and interests by all mankind as the social means to the end or goal of individual development, reflective thinking and the effective use of oral speech and written language are prime essentials A dictatorial regime, on the other hand, restricts thinking and communication of ideas not only in the political field but also in other fields where scientific fact and principle or philosophical conclusions run counter to the goals chosen by those in power. The family, the school, the community, and the nation, to the extent that they are democratic, and to the extent that they wish to utilize human potentialities for development, will encourage each of its members to think reflectively up to his capacity.

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XVII

ESTHETIC TASTE

ANY DISCUSSION of esthetics which is related to the work of the public schools of a democracy assumes that the enjoyment of beauties of all sorts should permeate the life of every child, youth, and adult The underlying purpose is to break down the walls that have surrounded the fine arts and have restricted their production and appreciation to the few, so that the many may be given an opportunity to participate in the best products of our culture. At the same time the quality of our culture must continually advance in its finest expressions. Perhaps the term esthetics also should be extended beyond its usual reference to beauty to include all events in which things are done fittingly or, as we say, "in good taste " In addition, we should all come increasingly to find beauty outside of art products—in landscapes and even in the curling smoke of a factory chimney. Instead of making esthetics and the fine arts a separate field of study, we should seek to bring a certain appropriateness into all kinds of activities and hope for appreciation in a wide variety of experiences. Parents and teachers are not concerned to make children and youths into artists and art critics, but they are concerned that each growing individual may develop tastes

that will make his own life richer and promote the beauties of his home, school, and community

Some Problems in Developing Appreciation

The problem of developing joyful appreciation and esthetic discrimination comes vividly to any teacher who compares the crude preferences and behavior commonly shown by boys and girls and many adults with the choices made by a mature person of "good taste" and with his manner of daily living Select among your acquaintances such a person who dresses becomingly; who listens to music of high quality whether a recording, on the radio, or at a concert, and who participates freely in musical events, who chooses books and magazines with literary discrimination, who selects for his home appropriate appointments; who attends plays, exhibits, and other events that contribute to his growing appreciation of the fine arts; and who may even have a hobby related to the arts. Still more fundamental in the life of this person is the fact that the common, everyday tasks are permeated with appreciations and refinements that add fullness and quality to ordinary experiences. Thus the person of "good taste" participates actively and is not contented with mere looking and listening while others perform and produce.

Consideration of such an individual raises a number of questions How did this person reach his present level of "good taste"? What factors and conditions in school and outside contributed to his esthetic development? Is discrimination among the more beautiful, the less beautiful, the inharmonious, the inappropriate, and the ugly a "natural gift" developing in the exceptional individual as he grows older, or is such discrimination an aspect of experience to be picked up incidentally by most people? Or is it a phase of universal education to be taught specifically and studied intentionally? Need a special approach be made to the arts, or

do these appreciations develop out of manual crafts and verbal studies? How can the everyday experiences of the immature be made more fitting to situations and at the same time become more joyful? Such questions suggest the subtle problems involved in bringing into the life of the immature individual appreciation of the beauties that are the products of a mature culture and in promoting in each young person the inclination and ability to make contributions of his own to the beauties of living in his home and community.

Origins of Early "Tastes"

These complex problems may be simplified somewhat by approaching them through the "tastes" that are evident in early childhood Our common use of the word "taste" to indicate refined appreciation in music, poetry, or painting suggests the origin of these choices in sensory experience For example, an infant a few weeks old apparently is able to distinguish between the taste of sugared milk and unsugared milk, for he accepts the one and rejects the other From this crude beginning he will no doubt achieve through maturation and experience a multitude of discriminations in foods by the age of ten years, and he may become in maturity even a taster of teas or wines, whose appraisal of flavors is most acute. Thus out of varied gastronomic and associated experiences each individual decides *for himself* what tastes good to him. A teacher or classmate may prove to you that you have erred in the solution you present for a mathematical or historical problem, but no one can prove that you are wrong in your choice of tea over coffee, even though there may be a strong but arbitrary social preference for one type or another. This direct effect of the individual's own subjective feeling of preference in whatever he "learns" esthetically distinguishes this approach to learning from reflective thinking with its relatively objective scientific tests and proofs.

Although it is a simple matter to say which of two foods tastes better, the physiological processes involved are still complex Besides the taste-buds of the mouth and the olfactory organs of the nose, other sense organs such as the special nerve endings in the mouth that respond to temperature and the physical smoothness of the food contribute to one's preference in many foods, such as ice cream and cake. In addition the nervous system integrates reactions occurring in the endocrine glands and visceral organs with voluntary muscular movements as the eyes, ears, and other sense organs receive stimuli from the environment Since taste in food involves many complex physiological changes throughout the body, the development of one's "taste" in graphic arts, music, or architecture doubtless is underlain by similar but even more complex adjustments. In spite of the physiological complexity, however, the total feeling of preference for this or that form of beauty or of rejection of the ordinary or ugly object is a matter of direct experience As we shall see later, conditioning and verbal repetition give indirect experiences that interfere rather than contribute to genuine taste of the direct kind. The directness of the process of esthetic refinement does not imply simplicity, however, for it is really so subtle that the analyses of the six approaches to learning previously considered can throw only partial light upon it. Consequently, a study of the development of appreciations from infancy onward becomes a necessary basis for later consideration of the relations between esthetic refinement and such constructive learning as occurs in motor skill, visual insight, and reflective thinking.

Turning from the food-tasting organs to the organs of visual "taste"—the eyes—we find that these sense organs promote in infancy a reaching toward the brighter red rather than toward the darker blue. This well-nigh universal choice of very young children may be based upon the intensity of the light rays affecting the relatively immature visual organs

and neural system We know, however, that by the age of
ten most American children go beyond the mere choosing of
a brighter set of colors to the selection of color combinations
that seem harmonious to the majority of adults, in preference
to those that are generally considered "clashing" Experi-
mental studies have demonstrated that most American chil-
dren between the ages of ten and fifteen show decided and
similar preferences in color combinations, but that sub-
normal children whose preferences are crude, and profes-
sional artists, whose preferences may be unorthodox and
daring, do not conform to the usual choices and do not agree
among themselves in such preferences How does this change
from the crude choices of infancy to the normal tastes of
later childhood occur in the typical case? What can parents
do to promote it?

While the individual who acquires esthetic refinement in
the choice of color combinations must *feel* the preference
himself rather than accept the dictation of any artist or
teacher, he may still be aided substantially. His experience
in discrimination may be enhanced by leading him fre-
quently into practical situations in which he becomes in-
terested in making such choices His instructor may also
point to color differences which the learner might not per-
ceive of his own accord. Here the pointing is similar to point-
ing in teaching motor skill when the neglect of a detail in
the movement may be called to the learner's attention. In
both cases the actual correction remains in the learner's own
hands at all times. Thus a person may learn under skillful
guidance to see color distinctions and thereby improve his
esthetic judgment.

While the youngster is seeing diverse colors, however, his
eyes are also detecting diverse forms. He sees straight lines
and curves, which mark off triangles, rectangles, circles, ovals,
and more complex figures In addition to lines and plane sur-
faces, he sees three-dimensional objects—spheres, cubes, cylin-

ders, pyramids, and many others These solid objects and their relative location involve experience of visual perspective. During the first two years of life great changes occur in the child's ability to see objects in perspective and to judge distance This advance in visual perception is aided by experiences in reaching for and walking up to objects at a distance. Granting that the child has acquired such visual skill in ways similar to those used in his attainment of manual skill, what makes him prefer a curved line to a straight one, or vice versa? And why does he like one design better than another? Why does he come to pay more attention to perspective in drawings? The ten-year-old who is making a design for a notebook cover must discriminate between *patterns,* each of which is a more complex unit than a mere pairing of two colors for harmony Each art product in whatever field is characterized by a degree of unity in its design and pattern that makes esthetic discrimination among these objects a much more complex process than one's reaction to the taste of a single food or even of a sequence of flavors composing an epicure's meal. The crayon drawing of a twelve-year-old, for example, may constitute a pattern involving color, design, and perspective. The degree of beauty attained and appreciated depends upon the whole pattern and the ability to *see and feel* the unity of the composition.[1]

Esthetic Production and Perception

Before going further into the problem of how beauty of design can be learned and taught, it may be well to distinguish more clearly between two aspects of the individual's development in esthetic refinement. One aspect may be called "production" and the other "perception." When the

[1] Betty Lark-Horovitz, "On Art Appreciation of Children," *Journal of Educational Research,* 1937, vol 31, no 2, pp 118-37, 1938, vol 31, no 8, pp 572-98, 1939, vol 31, no 1, pp 7-35, 1939, vol 33, no 4, pp 258-85

twelve-year-old makes a crayon drawing he *produces* cre-
atively, seeking to achieve beauty When the same twelve-
year-old inspects the drawings made by his classmates to
judge what beauties they have achieved, he *perceives* with a
degree of esthetic appreciation In the former he is more
active, in the latter he is *relatively* passive Let us say at once
that these distinctions are not sharp, for he must "perceive"
his own work as he "produces" it, and his perception of an-
other's art product must involve an active sharing of the
other's mood Nevertheless, the distinction between appre-
ciative "perception" and creative "production" may aid our
thinking concerning the development of "good taste "

Which of these two aspects—production or perception—
should be emphasized more? Should the emphasis vary with
maturation age and stage of development? Should the em-
phasis be different in the diverse fields of esthetics? Consider
first the fact that great physical activity is characteristic of
children from the age of three years or under to ten years or
above, while the adolescent gradually reduces his activity as
he leaves the teens, until he becomes in many cases at middle-
age a relatively inactive person. This statement is true even
if an individual continues the amount of exercise most
favorable to health, except in the case of those persons whose
vocations require much physical activity. This gradation in
the life sequence from greater to lesser activity suggests that
younger children may and should spend a relatively large
proportion of their time in actually drawing, painting, sing-
ing, playing simple musical instruments, talking, reading
aloud, dancing, and enacting their own plays as compared
with the time spent in viewing sketches and paintings of
their classmates or professional artists, listening to music or
readings, and attending to actors or dancers on screen or
stage. Active production by the youngster himself in many of
the fields of art opens the way during childhood and youth
to fuller perceptive appreciation of the productions of artists

and of the natural beauties about him, for example, in the landscape from day to day and in the varied play of children

From the standpoint of the development of the great majority of individuals, the elementary and secondary schools serve esthetic taste best when they lead many growing individuals into a wide variety of skills involved basically in the arts and thus open the way for appreciation daily in the diverse experiences of life Consequently, the extension of the motor skills usually taught, adhering closely to the principles appropriate for teaching skills, leads sanely and soundly toward "good taste" For example handwriting can be accompanied by drawing, painting, carving, and other handcrafts, reading can be extended beyond mere intellectual meaning to the rhythms of prose, poetry and music, the posture instruction of physical education can involve the flexible adaptation of the whole body in drama and the dance, projects in construction can be extended beyond the skillful use of tools to the creation of designs that combine utility and beauty. Instead of drawing a sharp line between manual skill and artistic production, the latter becomes a gradual emergent of the former Esthetic appreciation can thus become an inseparable aspect of the amateur's activity.

Manual Skill in Esthetic Appreciation

The relation of manual skill to esthetic appreciation is so close that in many cases the contrast is principally a matter of emphasis. In attaining skill, such as wood carving, the learner feels his way through the act with his eye on the objective; and at the moment he grasps the knack of the process he has a feeling of the fitness of his own movements. Another moment of esthetic thrill comes later when the process is completed and he holds the product, the finished carving, in his hand. These feelings of pleasure are akin, although the former comes chiefly through kinesthetic sense organs and

neural centers involved in the process, while the latter comes through the eyes and focuses upon the product The two aspects of experience are as inseparable as the process and the product in any act of construction or the means and the end in any intellectual problem or social action. While esthetic experience may occur without the intervention of human hands, as when one admires a star-lit sky, a mountain peak, a green valley, or the rolling sea, it is a major function of esthetics to encourage human construction in the production of beautiful objects Esthetic taste is almost as close to the muscular activities of the living creature as it is to his sensitive perceptions [2]

Mental Processes in Esthetic Production

It is clear also that both in an ordinary manual skill, such as handwriting, and in an esthetic activity, such as painting a landscape, there are similar internal and implicit or, as we commonly say, "mental" processes. In both cases the active producer has at least a partial visual image of the product that guides the movements of his arm and hand. Consequently, these movements are not made at random, although there is freedom to experiment, especially in painting One landscape artist tells us that in his case there is a constant retrial "in color composition, balance of light and dark masses, rhythm, surface, plastic patterns, and other factors. This kind of 'trial and error' seems to go on whether I am making the painting or looking at one by somebody else." Likewise, as in the case of most school children with handwriting, the artist finds that "the manual skill rarely seems to attain the perfection of the mental vision or the visual image." Of course, the difference between the product and the ideal is more profound in a creative art than in a skill

[2] Polly Ames, "Children and the Teaching of Painting," *Progressive Education,* 1939, vol. 16, no 8, pp 535-42.

like handwriting that seeks only to approximate a "copy" and reach a normal standard of legibility and speed. In the arts one encounters the limitations both of manual skill and of the medium—notably in crafts like carving or pottery. To these difficulties is added that of achieving a concept or impression that the artist wishes "to come out of the painting " The relations of skill and esthetics with their implicit or "mental" aspects throw light upon each other and upon many of the higher processes involved in learning at the human level

When an artist says that artistic creativity is the individual's translation into his own terms of both experience and its meaning, he emphasizes the "mental" concepts that guide musicians, painters, sculptors, dancers, dramatists, and other artists. In this connection, artists often maintain that meanings conveyed through art are more comprehensive and basic than the meanings expressed by mathematical and scientific symbols. Thus perception involves assimilation of meaning and an enrichment of the personality as though the self had been "enlarged." In other words, creation is so intimately related to perception that the degree of development and freedom experienced by the individual may on the whole be nearly as great in a perceptive act as in a productive one. It remains true, however, that emphasis must be maintained throughout childhood and youth, at least, upon active participation in the arts, if the development of esthetic taste and enjoyment is to occur in full measure

When the intimate relations of motor activity and esthetic perception are realized, it is clear that the teacher needs to guide his pupils into a balanced interaction between the two aspects of "production" and "perception," which is appropriate for the individual and the craft involved The general principle of heavier emphasis upon the motor activity of production in the earlier years will be applied differently to crayon drawing, clay modelling, singing, violin playing,

dramatics, appreciation of poetry, dress, and household decoration. "Perception," even in early childhood, is a stimulus to "production," whether it be the "perception" of one's own product or that of another. At the other end of the maturity scale there is serious danger that activity in "production" will be decreased until the perceptions of the adult audience are dulled by mere sitting in the presence of arts that are not actively appreciated Perhaps every mature person should have as one of his hobbies an activity closely related to the arts and crafts, while the professional artist should maintain at least his perceptive contacts with arts beyond his own particular field of music, painting, or dramatics.

The main point is that interaction between the perceptive and productive aspects is essential, and that the proportions and forms of this interaction vary with the stage of maturity and with the branch of esthetics involved The education of "good taste" is an individual affair to an even greater degree, perhaps, than is reflective thinking Yet every individual should acquire in childhood and youth a broad basis for appreciative taste over a range much wider than his areas of active production so that he shares widely in the esthetic interests of his community and culture.

Beauty and Utility

Esthetic refinement has relations, however, beyond those with high skill in arts and crafts As has been suggested, it involves the construction of a design or pattern that is beautiful. Although the patterns of music and poetry come to us through the ears, we will turn again to those patterns or designs that come to us through the eyes. These esthetic patterns may be contrasted with those visual patterns constructed by insight through visual survey The latter are constructed for their usefulness while the former are de-

signed for their beauty For example, I am writing today in the bed-living room of an artist As I come in I note certain features that tend to make it a beautiful little room. The white-painted woodwork and the panelled doors are of simple, early New England design, on the neutral colored walls hang a few black-and-white prints—Raphael, Rembrandt, Leonardo da Vinci—while on the floor is an Oriental rug of soft blended colors and subtle pattern The furniture is simple and neatly arranged, and the window looks out upon a bit of Vermont brook and meadow backed by sumac, hard woods, and pines But since I wish to write, I visualize a practical arrangement and begin to break up the beauty of the room's design I drag a utilitarian card table out of the closet, push the furniture around to handy angles for holding my books, files, notes, and pencils, I turn half away from the window so the light falls over my left shoulder on the yellow sheets Someone coming into the room might say that from an esthetic viewpoint I have made a mess of the place, but I can reply that I have at least shown visual insight concerning the arrangement useful for writing.

One may *see* the room in either of two ways. as patterned toward beauty or patterned toward usefulness for a specific purpose. Or to put it in terms of process and product, one may emphasize the *process* of writing in arranging the room, or he may seek as the *product* a beautiful arrangement. Even a professional painter may design his studio with black walls or other conditions that give it what many would call an ugly appearance because he seeks certain lighting effects for his painting process. Here we encounter contrasting views, some say utility destroys beauty, while others claim that usefulness leads straight toward beauty Perhaps neither of these extreme statements is very helpful in daily living. The main point is that if one starts from the beginning with both beauty and usefulness in view and is at liberty to choose and construct, he may in many cases achieve both

aims without conflict, thus uniting neatly the practical proc-
ess and the beautiful product. Indeed, this unity of utility
and esthetic refinement is the optimal end of design So eyes
that have been educated fully will give us the kind of crea-
tive insight in which the two aspects are integrated har-
moniously

Esthetic Feelings and Reflective Thinking

The realization that the eye with its possible inter-rela-
tions, through the nervous system, to every other sense organ
and every muscle can *at the same time* criticise a design for
both utility and beauty, or that a person can imagine a
better design, may serve as an introduction to the problem
of the relations of reflective thinking to feelings of the es-
thetic kind When one looks at the Madonna by Raphael,
he may *think* of certain meanings—Medieval Italy or the
child Jesus, at Nazareth—and he may also gain a *feeling* of
satisfaction from the skillful design. While the emphasis
may shift from the meaning to the esthetic feeling of design
and back to meaning, one is more apt to find both effects
occurring than to find either excluded. Extended education
in the field of design may be required to enable even an
intelligent adult to escape entirely from meanings which
have been a part of his culture since childhood. It is also
very difficult for anyone to escape from the feeling of appre-
ciation once it has been experienced. On the other hand, it
is entirely possible for an artist or even an amateur to draw
a design that has esthetic refinement with no meaning, and a
composition of this kind can be enjoyed without inquiring
either in regard to its utility or the thoughts behind it. Like-
wise, such a sentence as, "My pencil is broken," may convey
a useful meaning with esthetic neutrality Of course, reflective
thinking serves as a means of evaluating craftsmanship While
scientific method and esthetic preference are separable ap-

proaches to life situations, they still may contribute to each other under favorable conditions for enriched living

Although reflective thinking and esthetic refinement may be intimately related in many experiences, one aspect of experience is not a substitute for the other. Knowledge of and thought about the facts of Raphael's life can not become a substitute for viewing his works, although such knowledge helps us understand the reasons for their creation. Taste in food, music, household decoration, literature, and the multitude of other forms of beauty can be acquired only through many direct contacts between a human being, who has acute sense receptors inter-related with all the organs of the body by an adequate neural system, and a richly cultural environment in which are provided appropriate compositions—musical, literary, architectural, and many others. Whatever contributions verbal guidance and thought in language terms may provide, they, as enlightening statements, can serve merely as indirect means for promoting direct esthetic experience—personal "tasting" of art products

A word or a set of words constitutes a middle term, or a means, or a meaning that bridges a gap between a language-using human being and an object or objective. In esthetic experience, however, the word must stand aside in order that the object and the organ may come into the more intimate contact provided either by organs like those of touch and temperature in the finger tips or by distance receptors such as the ears and eyes. Although language is one of the chief tools through which human culture is built, the teacher must never forget to lay this tool aside so that the hands, the ears, the eyes, and the whole body may actually *feel* the harmonies that exist about them.[3]

When we turn in the other direction to emphasize the actual relations that may be found between reflective think-

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[3] Albert C Barnes, "Art as Experience," *Progressive Education Booklet no 13*, American Education Press, Columbus, Ohio, 1939, pp 13-25

ing and esthetic production and appreciation, we must be cautious. Both art and thought have so many forms that dogmatic statements are dangerous Perhaps we must acknowledge the existence of art—even great sculpture and painting—where there is little or no evidence of reflective thinking on the part of the artist On the other hand, to say of many an artist that he *thinks* as he works is just as true as it is to state that he makes skillful movements. And although many of the artist's thoughts come as visual, auditory, or kinesthetic images, they also include the verbal symbols which form the vocabulary of that art As we move from the primitive toward the sophisticated forms of art, thinking may contribute more and more to the process Likewise, in the perception aspect, the higher degrees of appreciation may involve more thought and verbal criticism, although not all the subtle feelings of approval or disapproval can be expressed in words Language and thought occupy an important place in esthetic refinement as truly as they do in scientific invention [4]

The Activity of the Whole Body

The participation of the whole body in acts of learning should not be forgotten even when attention is centered upon the functioning of the ears, the eyes, the hands, or on verbal reactions connected with the vocal organs and the brain cortex. As it is evident that intellectual attainment could not occur normally without visual insights and at least a minimum of basic motor skills, so each field of esthetic refinement depends upon and involves the whole body Music is as much a function of the rhythmic clapping with the hands as of hearing with the ears, a piece of pottery or sculpture is enjoyed by the touch of the fingers on its texture and the movement of the hand over the curved surfaces as

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[4] William Bruce, *Principles of Democratic Education,* Prentice-Hall, Inc New York, 1939, Chapter 10

well as the visual exploration from every angle, a painting is appreciated through the bodily tensions suggested by the lines and shades

This functioning of the whole body in esthetic perception as well as in production is most obvious in a complex art such as the modern dance. Each member of the audience enjoys the production through eyes and ears and perhaps implicit movements of muscles throughout the body The esthetic approach to learning involves, as do other approaches, processes throughout the whole physical organism Furthermore, it is evident that in dramatics appreciation by most members of the audience involves a sharing in the varied actions and moods of the characters, and that esthetic experience can occur in so far as the life being enacted has in it something to be appreciated—be it beautiful or ugly, grotesque or harmonious. This sharing of a significant experience with the artist is, of course, a requisite of other arts as well. Although the ideal emphasized in esthetics is beauty, the process of esthetic learning involves making distinctions of many kinds which are not always confined to gradations on a scale from ugliness to beauty Whenever the whole body, acting in a multitude of diverse ways, but on each occasion as a unit, indicates a new preference, and thereby alters succeeding experiences and choices, conduct is modified and esthetic taste is altered Therefore, esthetic taste scarcely can be restricted by any narrower phrase than the feeling of things done fittingly.

The Teacher's Role

Since the process of esthetic refinement through perception depends upon so direct a relationship in experience between the learner and the objective art product, the teacher seems to be pushed aside as though no intermediary were needed. It is clear, however, that the teacher has a very

important function to perform That function consists in
detecting the individual's stage of esthetic development in
various fields and finding in the vast resources of our culture
a poem, a musical composition, a dance, or a picture appro-
priate to the learner's further growth at that stage It is a
further function to provide and encourage those activities
that lead the learner on [5] Research in this field of develop-
ment has only begun and many experiments in art produc-
tion and perception by children and youths lie ahead as keys
to the kinds of experience that will be most fruitful in their
esthetic education Knowing the learner and knowing the
culture are the basic functions of the teacher, whether he is
dealing with esthetics, mathematics, or history Even in point-
ing out details worthy of attention, the teacher must move
cautiously So it may be well to consider a few protections
that the parent and teacher should throw around the learner.

Certain dangers that lie in the path of one who seeks to
promote esthetic refinement may be referred to the three
lowest approaches to learning. As has been suggested else-
where, conditioning, pseudo-mechanical repetition, and trial-
and-chance success are approaches to learning that often re-
tard rather than educate. Taking conditioning first, parents
and teachers may well avoid from early infancy onward, as
far as possible, every conditioned esthetic preference and
dislike If the child acquires conditioned fears or dislikes,
these may spread over certain colors or sounds so that he
may never fully enjoy compositions containing that color or
group of notes Conditioning, of which the learner is una-
ware, is an obstacle to that acute and free awareness so
essential in esthetic taste If conditioning has occurred, un-
conditioning may be the device necessary for its elimination.
Even conditioning to prefer the beautiful, however, defeats
esthetic education. If a child should be taught to like a

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[5] Aaron Copland, "Progressive Musical Viewpoints," *Progressive Education
Booklet no 9*, American Education Press, Columbus, Ohio, 1938, pp. 27-31.

certain tune by feeding him a well-liked food while the tune is being played, following the principle of contiguity, he might continue throughout life to be the victim of his own food tastes and of the choice in music made by his teacher. His own taste in music and his ability to discriminate esthetically between two tunes would be retarded rather than advanced by this indirect process of shifting an old reaction (eating with pleasure) to a new stimulus (listening to a tune). Instead of learning to like music through a connection with *some other kind* of experience, the youngster should learn through *direct* contact In addition, this direct esthetic process is *creative,* whereas conditioning provides only for shifting an old reaction feeling of preference to a new factor. Conditioned shifts dictated by a teacher do not produce a creative artist or even an appreciative perceiver with good taste.

It is evident also that pseudo-mechanical repetition or rote memorization of a poem, for example, is no guarantee that the esthetic value of the poem will be appreciated. The fact that a person may so enjoy a poem that he wants "to learn it by heart," does not prove the reverse—that learning it perfectly by rote will make one enjoy it. Whenever the teacher encounters an art form that can be copied in a more or less mechanical manner—as in literature, music, drawing, and dramatics—he needs to save the learner from dropping into this pitfall on the road to esthetic taste Otherwise, failure to create new appreciations and even boredom may result.

Occasionally, we meet a person who uses the vocabulary of an art so smoothly that only artists can detect his lack of any real sense of esthetic values. Art, however, is not a process of verbalization or of imitation but consists in creative participation that shares in the works of others without accepting their dictation. No novelist, painter, pianist, or architect could reach high achievement without extensive acquaintance with the history and contemporary production in his

field Likewise, the amateur learns from the professional, and the child from the adult But genuine learning in esthetics, and elsewhere, involves a personal comprehension of one's culture that enables him to step forward on his own feet. While dictation of one whole generation to the next may not be so injurious as the dictation of one person or a small group to their contemporaries, any forcing toward exact copying is sure to interfere with progress toward better taste In this connection, we face the fact that "good taste" is determined and imposed by edict in the fascist states.

On the other hand, esthetic refinement cannot be left safely to chance If we leave taste to chance contacts, we get mostly unfavorable results Under such circumstances some children meet only the esthetically barren environment found upon the rough frontier, in the isolated rural district, or in the city slum. At the other extreme, children with apparently better opportunities are assailed by diversions established for commercial profits and appealing more to crude emotions than to refined appreciations Even when the teacher herds the class into a water-color exhibit, giving them half an hour to find the first prize, they may learn no more than a cat in a puzzle-box Neither will they learn much by simply being told which water-color received first prize, for the uniformed guards in art galleries possess such information without necessarily becoming qualified critics of art. These several facts lead to the conclusion that the achievement of good taste involves a subtle form of guidance that avoids dictatorial regimentation as well as avoiding the policy of letting the individual shift entirely for himself in a social environment that varies so tremendously from country to city, from community to community, and even from street to street in our urban centers.

Influences of Movies, Radio, and Reading

A consideration of the role of movies, the radio, maga
zines, and newspapers in the esthetic development of chil-
dren, youths, and adults reveals serious problems. Here we
have a common combination of chance and commercial
enterprise. For example, the movie most children attend de-
pends upon the location of their homes near a particular
theater, and the pictures shown at that theater usually de-
pend upon the choice made with a profit motive by a large
commercial organization located outside the community
The individual parent, teacher, and child are in large meas-
ure victims of circumstances beyond their control under such
conditions. A certain movie may make a distinct contribu-
tion toward esthetic taste while another may have the op-
posite effect

The radio offers more opportunity for guidance in the
home, but too many programs especially designed for chil-
dren have doubtful value either from an esthetic, emotional,
or ethical viewpoint   The talking movie and the radio
combined have tremendous responsibility for esthetic devel-
opment in music, speech, and drama, but this responsibility
is not taken as seriously as it should be by business enter-
prises whose primary purpose is monetary profit The solu-
tion of these and kindred problems lies in the realm of
democratic social organization which provides for a sharing
of responsibility and control with the few producers by the
many consumers, as well as through guidance by parents
and teachers of children's auditions of movies and radio pro-
grams.

Magazines and newspapers form an older but now readily
available source of esthetic change which carries all the pos-
sibilities for improvement or retardation mentioned in con-
nection with the movie and radio. In all of these fields the
school often takes the lead in providing carefully selected

movies, radio programs, and a varied library of books and magazines, which promote good taste more or less in competition with the chance offerings of the local movie theater, the news stand, and the ubiquitous radio The radio and the movie did not originate the problem of the relations between private commercial enterprises, public educational institutions, and private homes, but these new instruments of culture do bring into sharp relief the problems that arise in the esthetic development of the individual child while he is learning under more or less guidance to choose for himself with good taste.

Esthetics in Dress

The matter of dress may serve to illustrate other dangers that dog the path of esthetic development With children and adults, centering on taste in dress too often means competitive centering upon one's self with all the undesirable emotional and social results that will occur to the reader Almost as unfortunate from an esthetic and social viewpoint is that slavish following of fashion with which moderns, especially in the United States, are beset. Such considerations lead many teachers of children to avoid this area of discussion altogether. At least dress must be treated with caution because differences in dress so readily reveal economic differences to which children are very sensitive.

Educability in Esthetics

The error of trusting esthetic refinement to the "natural development" of the raw, uncultured individual himself has been the unfortunate outcome of several different misconceptions. The appearance of exceptional talent in fields such as music and painting has led to the assumption that "heredity" presents artistic gifts in so definite and specific a form that mere growth will result in artistic achievement if the

person "has it in him" According to this view the child, youth, or adult merely "expresses his inner self." If esthetic refinement were a matter merely of self-expression, each individual would go ahead by himself. Studies of human abilities indicate, however, that the differences between individuals lie in the quality of biological equipment of eyes, ears, nervous systems, and other organs, and that these differences range along a continuous scale with medium equipment most common, while the equipment that makes the recognized genius in art possible is relatively rare People are not divided by heredity into two classes—the artistic and the inartistic. The actual biological situation provides adequate equipment for the potential spread of esthetic experience much more widely than occurs under present conditions. This wider sharing of musical, literary, and other esthetic interests is one of democracy's goals

The refusal of modern teachers to depend upon "natural development" does not mean that teachers should not be sensitive to differences in natural aptitude based upon biological inheritance From early childhood onward parents, teachers, and other adult guides should look for indications of unusual talent in the esthetic fields just as we do in mechanics, mathematics and language Goodenough's [6] studies indicate that whereas musical talent is often detected in early childhood, significant predictions rarely can be made in the graphic and plastic arts before adolescence. Certainly, the whole problem of giving differentiated opportunities to the gifted in the arts requires much more study than has hitherto been given to it. Thus the democratic task of teaching the children of all the people to enjoy and participate in the arts carries with it responsibility for promoting leadership in the arts by giving appropriate advantages to those who are especially gifted.

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[6] Florence L Goodenough, *Developmental Psychology*, D Appleton-Century Company, New York, 1934, pp 423 *f*

Another factor in the overemphasis upon self-development in esthetics has been the reaction against unwise guidance Many an artist has managed to escape from teachers who tended to restrict and dominate his work to accord with their own ideas and attainments Countless other creative artists have been stopped early in their careers by dictators in the schools Much of this stifling of creative effort has been due to false conceptions of the learning-teaching process. The ancient adherence to pseudo-mechanical repetition for rote memorization and the modern acceptance of behaviorism's conditioning have obscured the possibilities of an education that is based upon the mutual interests of learners and teachers When a pupil and a teacher share the process of learning a skill, apprehending through visual insight, or solving a problem involving symbols and concepts, there is established a subtle relationship which is appropriate also for the approach to learning we are calling esthetic taste The teaching of appreciation and creative production in art, literature, or music may be more difficult than the teaching of handwriting skill, the visual insights of mathematics, or the thinking required in social science, but the sound principles and effective practice of learning and teaching show more similarities than differences even in these diverse fields. In all of these approaches, the learner creates for himself in an environment set up by the teacher so that it contains the appropriate materials and provides sources of suggestions from the group members as well as from the teacher and from more remote sources such as books, concerts, music recordings, and art exhibits A learning process of this kind offers a distinct contrast both with the dictatorial control and anarchistic or laissez-faire neglect.[7]

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[7] George Cohen, "Art Education for a Living Democracy," *Progressive Education*, 1939, vol 16, no 8, pp 565-7

Social Experiences in Esthetic Learning and Appreciation

The process of learning and teaching is a social one. The music teacher is a social person who has for his art an enthusiasm that he imparts to his students He shares with them phase after phase of his musical experience, they sing and play together, they listen together before the victrola and the radio, and in the concert hall [8] Each individual has an experience distinct and different from that of his classmates, but in some measure all share the common experience and share the music of many peoples and times

Indeed, among the arts we have an array of media for social contact that bridges the limitations of language It is quite possible for American ten-year-olds using a single language to *feel* the beauty of music and drawing produced by children, adolescents, and adults from across the seas who speak another tongue Without some sort of language, no high attainment in the arts could be reached, but these arts advance beyond the verbal language tool to form a social, human bond based upon eyes that see and ears that hear and bodies that feel experiences that cannot be reduced completely to verbal symbols. The arts might be said to have each a language of its own by which it communicates feelings and attitudes, if not ideas. Art thus provides a common opportunity for participation in mutually shared experience, and also leads on into new experience for each individual. This emphasis upon esthetic development as a social process brings up the problem of determining what form of social organization will best promote it.

[8] Evelyn H Hunt, "What Do We Do About Music for Young Children," *Progressive Education*, 1940, vol 17, no 1, pp 18-24, Janet D Schenck, "The Community Music School in American Life," *ibid*, pp 25-27, May Anita Johnson, "Creative Music in Idaho Rural Schools," *ibid*, p. 28

Esthetics and Social Organization

So we turn from a consideration of some of the psychological problems involved in bringing an immature individual into perceptive and productive relations with a mature culture which offers an abundance of esthetic experience, toward a more specific study of the social difficulties and opportunities that may lie in modern culture itself Since parents, teachers, and citizens generally are concerned chiefly with human development and with esthetics only as a phase in development, we must return to our proposal of democracy as offering the social organization most favorable to human progress Is it true that democracy promotes esthetic taste, or must esthetics be sacrificed in some degree to achieve full democracy?

When we look into the pages of history, we find the peaks of esthetic attainment have occurred again and again in cultures where the social organization was more autocratic than democratic In the Athens of Pericles during the fifth century B C., sculpture, drama, and architecture rose to great heights; but these productions came within a narrow democracy which was built upon a slave society, and the arts were appreciated only by the limited upper class who held the status of citizens The comparatively few men who produced the esthetic Athens lived in an atmosphere characterized by personal security and freedom; but the institution of slavery dominated over the masses of the people with the approval of great thinkers of the period, such as Aristotle. Democracy, as we interpret it today, cannot be credited with the "Golden Age" of esthetics in Greece. Neither can democracy make any claim to the refinements of Chinese and other Oriental art produced from the fifth to the twelfth centuries A.D. When we turn westward to Europe's Gothic cathedrals of the thirteenth century with their thrilling spires and wonderful glass in lancet or rose window, we recall

strong monastic orders, a powerful Church, and a mass of peasants existing in pauperism at the foot of every cathedral spire

Illustrations like these, that show the arts rising out of dictatorships of various sorts, have led too often into ridicule of democracy as a social ground for the improvement of esthetic taste. The student of history should remember, however, that the form of democracy which promotes wide sharing of interests upon a voluntary basis hardly has been tried as yet Democracy in the nineteenth century put more emphasis upon individualistic, economic competition and a negative freedom from governmental or social control than upon any positive, cooperative organization to enhance the quality of the culture. Until democracy has existed upon a broad social basis for several centuries, the flowering of esthetics can scarcely be expected.

Another error in the interpretation of history consists in identifying democracy with the crudeness of the frontier. Although the American frontier gave many individuals freedom from social restrictions and fostered a spirit of independence, this aspect of democracy has necessarily undergone modification with the closing of the frontier, the crowding of farmers upon the land and of workers in the cities, and the interdependence generated thereby. Instead of taking Andrew Jackson, great as he was, with his speech and manners as the exemplification of all aspects of democracy, today we may better take a child or a youth in process of learning, or an adult who has learned to get along well with and to value many sorts of people, and to appreciate the esthetic in taste, whether in dress, speech, music, a handcraft, or a fine art. Today democracy must become increasingly a form of social organization that, through leadership, provides for refinement in politics and esthetics without excluding from participation and education any normal human being though his talents may be mediocre and his training meager.

Esthetics and Modern Industry

A further handicap to the development of esthetic taste in the modern world is the process of industrial production. In the first place, the technique of mass production, for example of shoes or automobiles, takes the workman away from his craft and makes him a mechanical instrument tied to the pace and movement of the machine or of the assembly line that he tends Instead of being a leather- or metal-craftsman who designs, produces, and finishes a product that approaches the quality of a fine art, the modern industrial worker is a minute fraction in a tremendous organization in which the quality and design of the product are in a few specialized hands. Thus millions of workers as well as thousands of share-holding owners are isolated from any esthetic qualities their industry may have

When one turns from industries that make beautiful products, like shoes and automobiles, to basic industries, such as those producing coal, oil, lumber, and steel, one of the main and lamentable results is to drive beauty from every area that these industries "develop." As this kind of industrial "development" goes up, human development apparently goes down Furthermore, the process of distributing products through advertisements puts a million bill-board blots on the American landscape. Thus industrial production drives a few of those who have "good taste," and who by good fortune can afford such luxury, to remote hillsides and shores where natural beauty reigns and where factory whistles cannot be heard and bill-boards are unprofitable.

The dreary aspect of modern industry in the United States, and in other nations, may make us wish for a dictator of esthetics; but an alternative is still open May not a modern democracy seek and find an adjustment of human esthetic needs to the complex requirements of industrial production and commercial distribution? Modern social democracy faces

a hard task in providing beautiful surroundings for the daily life of that large proportion of American families whose livelihood depends directly upon the factory, mine, and shop. Yet democracy takes just that responsibility of providing for the development of all, and for the well-rounded development of each, including his appreciations and opportunities in the esthetic realm [9]

Granting that democracy provides a political avenue for securing more beauty for more people in the home, the community, and even along the highway, there still remains the problem of rescuing miners, assembly-line workers, and many others from the negative psychological effects of their employment. A partial remedy is the shortened work week with leisure hours that may be devoted to recreational and avocational activities carrying more or less esthetic satisfaction and development of taste. At this point a clear distinction must be made between employment for a reasonable proportion of a week with security of income and employment that is irregular and insecure. In other words, unemployment is not leisure. Esthetic development in leisure time must be based upon financial security and emotional stability. Here again democracy, which seeks to adjust the interests of the employer and the employee, offers hope for a basic economic condition upon which esthetic taste can be developed, following in the mature years those leads toward participation and esthetic perception that the public school has given in childhood and youth. Nor should we neglect in our planning that other large fraction of our citizens who live on farms and ranches. Although they live among natural beauties and perform varied tasks—two conditions which make their problem less serious in many ways than that of the industrial employee—nevertheless, most of these rural workers will not

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[9] Irwin Edman, "The Resources of Art in American Life," *Progressive Education Booklet no 15*, American Education Press, Columbus, Ohio, 1939, pp. 33-40

have a full life until hours of work are reduced, financial security is established, and opportunities for esthetic training and experience are enhanced From these illustrations it appears that democracy today implies a social, industrial, and economic organization that constitutes the secure ground upon which esthetic development may occur.[10]

Functioning Arts in a Democracy

As such a democratic organization of society is achieved, the majority of citizens, who have only average abilities in the esthetic fields, must turn to the talented and trained musician, architect, painter, and craftsman for leadership and guidance. At the same time the artist needs to turn his attention to the needs and interests of his fellowmen. There has been an unfortunate myth which separated the artist from the common run of men and insisted that he was expressing in his art only an individualistic idea of his own. As a matter of fact much of the great art of the past, even under a form of dictatorship, has expressed the spirit of a whole people or of an age.[11] May not the artist in a democracy likewise share in his art the interests of the people? While the artist, especially in literature and on the stage, may often be leading creatively into new appreciations and new concepts, he is also building upon a culture which is old The artist-leader transmits and modifies the social culture of which he is a part. Like the common man he typifies in his own life the two aspects of democracy—individual difference and social sharing A democratic society provides for mutual interchange of experience in which the talented

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[10] C Delisle Burns, *Leisure in the Modern World,* The Century Co , New York, 1932.

[11] Horace M. Kallen, *Indecency and the Seven Arts,* Liveright Publishing Corp , New York, 1930, especially the essay entitled, "The Arts under Dictatorship"

artist is no more an individual and no less a social being than any other member of the community

Democracy also may provide more scientifically and soundly for the continuance and enhancement of artistic production, for production is not restricted by limitations of race or narrow political affiliations so universally associated with dictatorship A democratic society recognizes the fact that a child of potentially outstanding musical or other talent may be born in any family, such a society insists that no bar of class or race be raised against any talent wherever found Indeed, the modern democracy provides, especially through the public schools, for a systematic search for talents of all kinds, so that each new generation of children will find the places in life where they can produce most effectively and beautifully for the benefit of the whole community, and for the development and expression of their own personalities. Thus a democracy may be organized in the interest of esthetic taste using the principle of selective leadership as a substitute for dictatorship by artists.

Upon the basis of present and potential leadership, the opportunities for the development of esthetic taste in a democracy are very extensive. The wide distribution of ability and inclination to discriminate in favor of the beautiful as against the ugly, which begins to appear in early childhood, means that the public school has a dozen years in which to cultivate the taste of all our youth. When we actually begin to build more fully upon these realities, great changes may be achieved even in a single generation of school life. Esthetic appreciation may be lifted by good architecture in schools, by classrooms that have a direct sense of appeal esthetically rather than the bareness now so prevalent, and through the daily guidance of teachers who have and use an appreciation of the beautiful. Esthetic guidance can be given even by teachers who may be responsible for teaching the three R's in the elementary school or such a subject as math-

ematics, science, or history in the high school. The guidance
toward esthetic taste under such conditions will not be con-
fined to music periods nor to work of art specialists, but will
permeate almost every moment of the school day and touch
every activity and every subject of study. Thus esthetics may
become an aspect of all life in school.

Although we have placed heavy responsibility for esthetic
development upon the public school, teachers and adminis-
trators should never fail to realize the great possibilities that
lie in the relations with the adult community. From the
community to the school may come contributions from musi-
cians, artists, and craftsmen, who are glad to share their
experiences voluntarily with youth. These are the com-
munity folk who in one field or another can lead the pupils
and teachers forward in the arts and crafts. Looking in the
other direction, the school can give much to many of the
esthetically less favored homes of the community through
products of the shop and studio that the youngsters carry
home, as well as through developing abilities in music and
speech that enrich the home life. Through such exchanges
between the school and its community may grow a mutual
understanding and appreciation which will affect both in-
directly and directly the standards of entertainment in the
local movie theater and reach out to influence even radio
programs and roadside bill-boards.

Before concluding, the opportunities that lie in hobbies
may be suggested. Fundamentally, hobbies are made possible
by the leisure time that a productive industrial civilization
presumably makes possible for all adults, whether they be
machine tenders or managers in a factory, housewives or
stenographers, farmers or professional men. Hobbies begin
early in life. Perhaps every ten-year-old should have a hobby,
and usually one that requires the collection or, even better,
the making of concrete things. The high school often en-
courages hobbies by the organization of hobby clubs. Al-

though hobbies may change with the coming of new interests, it seems desirable that every busy adult should take time to follow a hobby as an aspect of his recreation The hobby may contribute more to his life if it is allied in some degree with the arts and crafts, again with emphasis more upon active production than upon mere collection. Although a hobby should be a means of expressing and developing individuality, it also offers a means of social contact with those who have related interests. Thus recreation in the hobby form may constitute for many a continuous growth in esthetic taste which is based firmly upon the economic security and leisure time that social democracy may provide for an increasing proportion of the community

The interpretation of democracy as applicable to esthetic development, which we have made, is a survey of the prospects rather than a description of the existing state of affairs. It is a proposal for improved social organization in the future. This proposal is quite as valid today as any pointing to the past in which esthetic production has occurred under dictatorship, or in which crudeness on the frontier or ugliness in industry have been mistakenly identified with democracy. As people in America and elsewhere create a democracy which emphasizes the widening of the area of shared common interests, supported by leadership in the arts and by appropriate economic, social, and political organization, esthetic taste in its every aspect can be shared more widely and appreciation may penetrate more deeply into the ordinary tasks and recreations of daily life. At the same time, the arts may achieve still greater heights.

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XVIII

EMOTIONAL STABILITY

TO BE emotionally stable implies so thorough an organization of a person's whole life that it seems almost unwise to attempt any separate discussion which apparently sets emotional stability apart as a particular approach to learning, like visual insight or esthetic taste. Nevertheless, the contributions of psychoanalysis, coming first from Sigmund Freud in Vienna as early as 1895, the work in this country by the National Committee for Mental Hygiene, beginning in 1909, and the contributions of many individuals have so transformed psychological theory and school practice that special consideration of this approach to human development and learning is justified We will try, therefore, to clarify the relations between the emotional aspects of life and the processes of effective, intelligent action rather than divorce emotional stability from other approaches to learning.

The Process of Emotional Organization

Emotional stability means that a personality is so well organized or adjusted that he does not "go to pieces," even in an emergency or crisis. Instead, he attacks the problem

with his full energies effectively organized In the emotionally stable child or adult, one does not expect temper tantrums or paroxysms of fear. His effective reactions are not disrupted by such useless, diffuse movements The stable child does not withdraw in fear or resentment nor with undue shyness from the activity in which his group is engaging Nor does he try to force his companions into an activity of an entirely different kind because of his own feelings, although an emotionally stable person is also a potential leader into new fields upon many occasions. Thus the organization of personality to the point of stability involves an active adjustment of the individual *in* his physical and social environment rather than a passive adjustment *to* or acceptance *of* his environment. Stability does not mean rigidity, but the term refers to continuous, dynamic progress toward selected goals with appropriate reorganization of the personality *and* of the material and social factors encountered on the way. With this prospect in view, we turn to an analysis of the processes of personality organization and incidentally of the dangers that accompany instability.

When we go clear back to infancy in search of the processes of organization in human life, we find neither a well organized nor a *dis*organized creature, but an incompletely organized little organism. The muscles, bones, sense organs, and nervous system are not yet well coordinated for reaching, manipulating, or walking. During the first year much progress is made through the combined effects of growth and exercise toward establishing many patterns of action that are fairly effective in attaining various goals within range of his eyes. It is evident that along with this emergence of desired goals comes at the same time the possibility and danger of failure. When the baby, through vision, has achieved the partial organization of his energies toward the attainment of a brightly colored ball but fails to obtain and handle it either because of his own lack of muscular coordination, the

presence of an obstacle between him and his goal, or the interference of another person, his energies may overflow from the channels of creeping and grasping to induce general muscular and glandular reactions throughout the body—to which we give the special name, anger, and the general classification, emotion Facial contortions replace the look of concentration that a moment before had indicated his intentness upon the goal, ineffective thrashings of arms and legs are substituted for better coordinated movements, and useless weeping may ensue. Thus in his first year of independent life the baby may go forward from partially organized to more completely organized activity and then fall back to temporary *disorganization* Since the healthy infant naturally grows more active week by week, his more frequent goal-seeking activities provide more occasions for blocking or frustration; consequently, there is increased danger that he may resort to a type of activity that is disorganized relative to the goals in view.

Emotional Control

Perhaps all parents and teachers will agree that a flow of disrupting emotions is undesirable. They are apt, however, to disagree concerning the nature of the remedy. This disagreement commonly exhibits a contrast between the negative and positive theories The former or negative view, which became well established before science was applied to psychology, before Freud presented his analysis of behavior, and before the mental hygiene movement took form, asserts that the emotions should be *controlled*. One interpretation of "control" assumes that the mental or intellectual part of personality can subdue the biological and emotional part by sheer force of "will." This assumption is based upon a false separation of mind and body This policy leads away from movement toward immobility; away from human con-

tact to the cell of the hermit, away from the healthy bodily action and social interaction out of which civilization has arisen. A less drastic interpretation of control recognizes the inevitable flow of excitement throughout the body that follows repression, but suggests that although the feeling of anger is beyond direct control, the outward behavior, such as striking the offending person, may still be controlled or a substitute may be found in a word spoken or merely thought. Whatever the feasibility and value of negative control, its practice has serious limitations and dangers unless it is employed only as a *temporary* device to be succeeded or accompanied by more positive, active practices *Negative* control violates a fundamental characteristic of human life, especially child life, namely, *activity*.

The *positive* theory emphasizes search for an organized mode of activity to replace, or preferably prevent, emotional disorganization Recognizing the flexibility of human action, varied opportunities may be offered so that the child may turn to another avenue if the reinforcement of emotional energy does not overcome the obstacle that has aroused the emotion. Another important principle is to have children meet those obstacles and tasks that come within the range of their growing abilities. Such an adjustment of the difficulty of the activity to the ability of the learner involves adequate knowledge of general stages of maturation and of the peculiar abilities of the individuals concerned To the extent that such a program of appropriate activities is provided for a child or youth, his energies flow into organized action instead of *overflowing* in temper tantrums, vulgar expletives, merely random and restless activity, or other symptoms of disorganization. The activity may still be exciting, but now the excitement of the learner takes the form of *interest in the activity* instead of *emotion about the obstacle*. No impossible separation of "mind" and body is demanded, for the body under these conditions operates in a way that suggests

"mindfulness" of the goal, or, neurologically speaking, that suggests cortical domination. The positive approach to emotion promotes physical and social actions that unify the personality. The implications of the positive method of dealing with emotional problems and the dangers of the negative attack may be seen more clearly through consideration of several emotions in addition to anger, and in such approaches to learning as conditioning, motor skill, and reflective thinking.

Consider, first, three inclusive expressions of emotion—anger, fear, affection—as they relate to activities that promote development As we have seen, anger at the extreme disorganizes activity and disrupts the personality. In so far as anger is a condition in which activity and even attack are stimulated, it turns out that in the midst of anger that is not too strong, a new start may be made at times by chance into well organized activity (Some psychologists prefer to designate *moderate anger* by the term "annoyance.") Thus the attacking aspect of moderate anger may be on occasion an asset because it leads to action, although on many occasions it terminates in wasteful disorganization of forces. Fear, on the other hand, is the name given to a condition of withdrawal—of inaction or of mere running away from the objective. Without advocating the stimulation of anger, it may be safe to assert that the child who is moderately angered by his teacher is more apt to accomplish and learn than is the child who fears the teacher and the task. Anger, if not too strong, stimulates, fear enervates.

Affection or love may appear to be more closely allied to anger than fear, because it implies active approach rather than inaction or withdrawal. On more careful examination it is clear, however, that affection in its *extreme* emotional forms implies clinging close to someone—parent, chum, or mate—as if in fear Such affectionate clinging leads to dependence upon the loved one for aid rather than the inde-

pendent action so essential in every stage and phase of development On the other hand, an appropriate degree of personal affection, varying with maturity, constitutes a sense of security which encourages constructive action Thus the promotion of positive action in accordance with personal and social needs stands as a fundamental remedy for undue emotion, whether it takes the form of anger, fear, affection, disgust, jealousy, sorrow, or other forms that will occur to the reader.

Frustration and Regressive Behavior

Frustration, in common language, means that the person experiences a dissatisfaction, that he has a feeling of need and a troublesome sense of unfinished business that demands some kind of conciliation. According to Freud, frustration is not uncommon in the daily business of living and we are all subject to it to some degree. The Freudian's doctrine, however, holds that the dominant source of disequilibrium resulting from frustration is the *libido,* which centers about sex understood as an extremely comprehensive function. Such frustration leads to acts which are the unacknowledged substitutes for the inexpedient wishes which have been re- pressed—including nocturnal dreams, day dreaming, humor, slips of the tongue and pen, and in the more extreme in- stances neuroses [1] and psychoses. This libido, or urge to live, which is said to be manifested in every act of self-expression, encounters socially imposed restrictions almost everywhere. Much that one desires strongly must be renounced, since the individual is too weak to impose his desires on a world and a society which do not conform to his preferences. If the re- nounced desires are, however, strong and insistent, the emo- tional tension and disequilibrium are very marked, as a

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[1] The neuroses are the less severe mental disorders, as distinguished from psychoses (true insanities) Neuroses are, for example, "nervous breakdowns," while psychoses are dementia praecox, manic depression, etc

result of the frustration The individual will, often uncon-
sciously, seek indirect satisfaction in forms that will be
socially permissible. (See "Sublimation," p. 474)

Some other psychologists have given the term, frustration,
a much broader, and it seems more useful, connotation than
have the Freudians. The former apply it to any situation in
which the individual is blocked in a course of behavior which
he desires to pursue.[2] Furthermore, it is maintained that un-
der such conditions of blocking, most individuals *regress* in
their behavior.

The term *regression* here means a return to a form of
behavior which the individual has outgrown, one which is
immature for his level of development. In other words, re-
gressive behavior resulting from frustration is the opposite
of progress and development of behavior. Ordinarily, the
individual desires and tries to engage in an activity and to
reach a goal to satisfy a need in a way that is consistent with
his level of maturity and development But the activity and
goal are, for some reason, inaccessible to him. He therefore
substitutes another activity, possible in another area, at a less
mature level, because the substitute apparently provides some
means of satisfying the need or of ridding one's self of the
tensions created by the frustrating situation. In the case of
children, numerous instances exist where they lapse into
baby-talk, employ very immature "table manners," go into
tantrums, whine and cry, have spells of enuresis, etc.

The effects of frustrating situations upon behavior of chil-
dren in play situations have been experimentally investi-
gated. It was found that, "A background of frustration de-
creases the average constructiveness of play with accessible
toys." [3] That is to say, the children's play regressed, in gen-
eral, to a form that was characteristic of younger individuals,

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[2] *Cf* Roger Barker, Tamara Dembo, and Kurt Lewin, *Frustration and Re-
gression An Experiment with Young Children*, University of Iowa Studies in
Child Welfare, vol 18, no 1, 1941.

[3] *Ibid*, p. 207

the degree of regression varying with different children At the same time, however, it was found that in a few cases a background of *weak* frustration increased the constructiveness of play This seeming inconsistency of results is to be explained by the fact that the *accessible* toys and situation had for these few children "the character of a real substitute for play with the inaccessible toys. . . ." [4] In other words, the accessible situation provided an adequate outlet in activity, thus satisfying the individual and obviating the necessity of regressive behavior

Since regressive behavior is on a lower maturity level than is warranted by the individual's development—that is, less differentiated, less rich, and not genuinely satisfying—it is a responsibility of teachers and parents to minimize blocking situations, but where such occur, to provide opportunities for adequate substitute activity

Emotion and Achievement

While we recognize that some degree of emotional tone is an inescapable aspect of almost all significant activities and that mild forms of emotion, even slight startles and threats of pain, give pleasurable excitement to experience, we face the difficult problem of using these milder forms of emotion constructively in life.[5] An important principle is to satisfy the emotional needs of children and adults through experiences that involve personal achievement and impart to the individual a feeling of his own genuine worth. The person's interest in his task may, in large measure, be such a mild but pervading emotional attitude toward the activity that a specific achievement and the general development of the individual's self-dependence and courage go hand in hand.

[4] *Ibid*, p 219
[5] Ellis Freeman, *Principles of General Psychology*, Henry Holt and Co , New York, 1939, Chapter 11

A life becomes emotionally stable through a long series of successful and satisfying experiences, from building with blocks in infancy, playing games in early childhood, mastering spelling and arithmetic in the lower elementary school, contributing to group projects and discussions in the junior high school, until at maturity one is able to withstand shocks of defeat and carry on in a stable manner through major difficulties.

As every one knows from experience, life is a succession of achievements and frustrations in which emotional strength is acquired as definitely as is muscular strength through exercise In both cases the tasks and difficulties need to be adjusted to the abilities of the individual by parents, teachers, and others responsible for the situations encountered, so that the degree of satisfaction of fundamental needs will gradually stabilize the personality Emotional stability is as surely an outcome of guided experience as is esthetic taste or reflective thinking.

Emotion and Conditioning

Before considering the more constructive approaches to learning, such as motor skill, visual insight, and reflective thinking, in which self-dependence and courage are effectively developed, we need to evaluate the lower approaches as they affect the emotional life. Conditioning and unconditioning result in *shifting* fundamental emotional reactions, such as a young child's withdrawal and crying identified with fear, from an old stimulus—for example, a loud sound —to a new stimulus—a dog. This fear reaction can in turn be displaced by one of pleasure and affection derived from a tasty lunch perhaps. The pleasant affection-reaction will permit more activity of the child in playing with the dog, and thus his perceptions and skills may be enhanced through exercise. The conditioning process itself, however, may merely shift him from a bondage of fear to a bondage

of affection, that is, his reconditioning may produce an un-intelligent clinging to the dog that interferes seriously with his development. The conditioning approach to learning establishes connections between stimuli and responses that must in many cases be broken before a fuller, more active kind of learning can occur. While conditioning may be a necessary means of shifting from a less desirable to a more desirable type of emotion or toward emotional neutrality, it does not promote constructive activity. "Negative adaptation" is closely allied to conditioning, for it is the process of getting used to something irritating or feared merely by frequent contact while some activity is being pursued which carries, presumably, enough pleasure gradually to neutralize the undesirable emotion. Thus while conditioning has substantial uses, it does not provide an adequately constructive program for emotional education.

Emotion and Pseudo-mechanical Repetition

"Verbal appeal," in which a short slogan is repeated by teacher and pupil, is closely allied to "pseudo-mechanical repetition." Such an appeal in words alone, that carry little meaning to the child, is as ineffective in emotional education as in intellectual development. Its use is based upon the false assumption that from the beginning the "mind" or "idea" controls the body or the motor action. Although the verbal appeal may be made slightly more effective by stating it in positive terms—"do this" in preference to "don't do that"—it is still too often based upon overconfidence in general negative control and neglects the provision of specific and appropriate activities into which the child's emotionalized energies may flow.

Emotion and Trial-and-Chance-Success

The trial-and-chance-success approach to learning consti-
tutes a step beyond the limitations of conditioned shifts and
neutralizations and of verbal repetition, in the last two of
which the adult guide lays down narrow paths as though
certainty was characteristic of life The actual *uncertainty*
of each forward step in life is typified in the active trials and
even the guesses of this transitional, trial-and-chance ap-
proach to learning Perhaps human impulses to gamble, to
take a chance, to make random guesses, and to try promiscu-
ously are the feeble forerunners of intelligence and are ap-
propriate in a world that is still full of uncertainties and
that is sure to place uncertainties in the path of every new
generation. The degree of caution that characterizes trial-
and-chance-success learning suggests a readjustment between
the savage attack characteristic of anger and the hesitation
and withdrawal that go with fear. And the child who tries
for himself has advanced beyond the stage in which he clings
to his mother for security, although the security of her love
may well be basic in his life Trial-and-chance-success im-
plies a transitional search for independent security that may
come later through the constructive processes of attaining
motor skill, gaining visual insight, and doing reflective
thinking.

Emotion and Motor Skills

The attainment of motor skill constitutes one important
way of pursuing an organized activity with a degree of suc-
cess and thus escaping from the disorganized movements
characteristic of rage Fortunately, motor skill is both an
"outlet" of emotion and a step in intellectual development.
Consider from these two viewpoints such a sequence of de-
velopmental activities as. the kicking and cooing in infancy
of the first year; the walking and manipulation of the second

year, the rhythms of four- and five-year-olds in the kinder-garten, the shack building of ten-year-olds, basketball games and hiking trips of adolescent groups, the more or less skilled labor of the majority of Americans who are wage-earners, housewives, or farmers Such motor activities carry mental as well as physical health, provide means of learning, and eventually may culminate in self-supporting, security-pro-ducing livelihoods Bodily activity, as it becomes organized toward the attainment of goals, reduces the problems of extreme emotion without eliminating or narrowing emo-tional development It is obvious that any physical defects or lack of energy should be remedied as far as possible and provision made for whatever bodily activities are appropri-ate. All handicaps to constructive activity should be removed, whether they originate in bodily defects, personal inhibi-tions, or adult prohibitions

Emotion and Motor Habits

When we study children or adults in whose lives normal motor, intellectual, and social activities have been restricted, and who have become maladjusted emotionally, we often find among them the victims of undesirable motor habits. Thumb-sucking, which usually begins as a harmless, com-forting, relaxing reaction derived from nursing, may later become a substitute for positive, constructive action in chil-dren who should be eating for adequate nourishment, or who are held back from play activities by adult "dont's," or by fears of their playmates Thumb-sucking in children be-yond the age of infancy is often—but not always—a symptom of motor and social inhibitions or of emotional irritation, and is to be remedied not by "Don't suck your thumb," but by providing play activities with other children in which the hands are kept busy with blocks or balls, and in which the social attitude is changed from inhibition to joy in com-

panionship. In school long periods of isolated study are inappropriate for beginners and bring about conditions that may promote the continuance of thumb-sucking and other useless, substitute activities

Nail-biting, as a symptom, is generally regarded more seriously than thumb-sucking and is found often among children who have been "nagged" until they are self-conscious and irritable. The fact that this symptom begins at about the age of two years, *after* the child has acquired enough language comprehension to make nagging possible, is significant. The frequency of nail-biting among children increases until six years, when its occurrence remains at a constant percentage until about age twelve for girls and fourteen for boys Then it increases for about two years [6] Perhaps these data indicate that children resist nagging with some success from the time they get established in school until the beginnings of adolescence when the rise in the concern of adults and the increased complexity of their own social problems lead to this nervous substitute activity. It is evident that as in thumb-sucking the *causes* of irritation need to be reduced rather than increased by further "nagging" about "the dreadful appearance of your nails " The solution usually lies in social adjustments within the family and outside of it that encourage plenty of healthy group play and work involving appropriate proportions of manipulation and general bodily activity.

Similar positive principles should be applied to enuresis and masturbation or handling of the genitals Although much more is involved than mere substitution of one motor act for another in these various cases, the principle of promoting skillful bodily activity toward goals intelligently chosen and socially pursued rather than restricting activity

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[6] David Wechsler, "The Incidence and Significance of Fingernail Biting in Children," *Psychoanalytic Review*, 1931, vol 18, pp. 201-209

is fundamental When positive activity is denied, undesirable activity often ensues

Emotion and Visual Insight

Visual insight provides avenues for successfully organized motor activities and thereby becomes another asset in the positive emotional life When an obstacle is encountered, instead of its causing frustration and the overflow of disorganized emotional activity that ensues, the learner discovers a round-about way, uses an old tool in a new fashion, or invents a new tool Not only is the undesirable strong emotion avoided, but a thrill of accomplishment, a desirable emotion, accompanies the flash of insight and suffuses the whole activity These favorable conditions that characterize learning through visual insight suggest that schools should provide many opportunities for children and youths to deal inventively as well as skillfully with materials. Much of the learning in mathematics, physical and biological science, geography, and history may be brought closer to visual insight and thus avoid some of the verbal memorization and the abstract reasoning that "nags" the immature but active youngster and drives him toward emotional outbursts or non-educative paths of escape

If we could keep all children, youth, and adults dealing always with concrete materials skillfully and insightfully, we could avoid many of the emotional maladjustments that occur in a modern or civilized community. In learning to think by means of words, man made a tremendous intellectual advance over his sub-human ancestors, but he also ran into the dangers of inadequate and twisted thinking Although thinking, like insight, provides new paths for organized activity and thus helps avoid emotional overflow, it may also become a useless substitute for activity or lead into activities that can disintegrate the personality if employed to a con-

siderable degree By way of illustration a few types of think-
ing and activity that can result in instability rather than
stability will be cited. The following "mechanisms" may
and often do operate without the person's being aware that
his thinking and activities are being influenced by them.
The "mechanisms" are evoked when the individual is un-
able or unwilling to solve the problem or resolve the ele-
ments within the problem. For the functioning of these
"mechanisms" permits the person to overcome the difficulty
in a socially approved manner or to release the emotional
tensions in a way satisfying to himself The problem is
"solved," but not directly If problems are "solved" by the
functioning of "mechanisms," there is an ever-increasing
reliance upon them instead of facing reality.

Emotionally Distorted Thinking "Sour-Grapes"

One common form of distorted thinking has come to be
called, from the fable of the fox, the *sour-grapes attitude.*
When a person feels that he cannot obtain an objective
toward which he has started, he may fool himself, if not
others, by saying that he does not want it anyway. Since
there is no direct means of testing whether or not a person
desires a certain thing, it is easy to deceive one's self by
discounting its value. We note that the person concerned is
not uttering a falsehood, for he has slid so easily down the
route of verbalizing that he does not recognize the emotional
condition that has gripped him. It is evident that a school
child who is pushed too often toward objectives that he can-
not reach is likely to console himself by adopting a sour-
grapes attitude toward school marks, much as a younger
child may suck his thumb. The negative character of the
sour-grapes attitude undercuts the positive approach to emo-
tional difficulties, for it leaves the child inactive as far as the
proposed objectives are concerned.

Negativism

The form of emotional maladjustment known as *negativism* goes on to the point of angry refusal to move toward any objective suggested. Yet all the way from the emotionally immature adult who fails again and again to participate widely in community life, saying "I'm not interested in that," to the two-year-old who shakes his head negatively almost in a rage, we have emotional attitudes inducing a kind of thinking that blocks development and at the same time blocks its own best remedy—activity toward objectives

Day-Dreaming

Another way in which undesirable reflection may displace activity is *day-dreaming* or *phantasy*. The child who finds his abilities inadequate for his tasks may escape from his difficulties and comfort himself by performing much more difficult tasks "in mind." Of course, a few of the many boys who day-dreamed in the old fashioned school behind their dull textbooks put their dream of inventions into active accomplishment; but most of them acquired a habit of substituting *thought about action* for *thought in action*. When imagination leads away from action it retards or even endangers development, although it may seem clever to the self-satisfied dreamer One common example on the adult level is the political radical who dreams and talks of a utopia produced by revolution but does nothing to improve conditions in his own community. Today we need to keep in balance our discussion of democracy and our *positive implementation* of democratic practices.

Compensation

Compensation is another "psychic mechanism" whereby the individual attempts to overcome or cover up (1) an un-

desirable trait or (2) a serious deficiency in some trait. The individual attempts to compensate by exaggerating a desirable or status-giving trait that he possesses or that he proceeds to develop It appears that the basis of compensation is the individual's feeling of inferiority in respect to some trait or group of traits, while the purpose of compensatory behavior is the attainment of a feeling or status of superiority through the exaggerated development of another trait or group of traits Individuals who manifest compensatory behavior need not necessarily be aware of the fact that such is the case.

As examples of this "psychic mechanism," we may take the youngster who appears markedly inferior, scholastically, in his classroom and who may seek to compensate by becoming the leader in misbehavior, or by exaggerated achievement on the playground demonstrating his physical prowess. Or the physically inferior child who seeks compensation in an exaggerated devotion to his studies, while disparaging physical achievement (See also *rationalization.*) Or an extremely wealthy person incapable of attaining distinction by creative activity may seek distinction in "conspicuous waste " Still another example is that of the rejected person who becomes over-aggressive in a drive to succeed. Excessive preoccupation with visionary projects, while immediate practical needs are ignored or neglected, is a form of escape from the pressures of reality by means of compensation. Similarly an exaggeration of gait and affectations of voice and manner may be attempts to balance a personal inadequacy elsewhere. The same may be true of excessive rudeness which serves in place of real strength or covers up timidity or fear of being exploited. From these and many other instances, it is clear that two conditions are necessary where compensatory behavior is manifested. (1) personal feelings of inferiority or inadequacy, and (2) exaggerated behavior to balance the inferiority or inadequacy.

It is not to be assumed, however, that all forms of compensatory behavior are harmful or useless If compensatory behavior is either or both, development of socially and individually valuable goals is replaced by useless or less than useless activities, accompanied at times by anti-social aspects Thinking and insight devoted to planning misbehavior may, in some instances, become instruments in juvenile delinquency and adult criminality. And thinking and insight combined with compensatory overaggressiveness may become tools for the exploitation of one's fellow men Compensatory behavior, on the other hand, may be of a harmless and transitory sort, or it may, in fact, eventuate in significant social contributions on the political, scientific, or esthetic sides of life, through the person's extreme devotion to his particular goals. At the moment, of course, we are disregarding the possibilities that even the social benefactors—through compensation—may not be well developed personalities, for ideally it should be possible to develop an individual's potentialities in a wholesome manner.

The technical use of the term, compensation, should be distinguished from its rather popular misuse. When a teacher, parent, or guidance counselor assists a child or adolescent in analyzing his interests, aptitudes, strengths, and weakness (psychological and physical), and then guides that child or adolescent into an education and forms of development consonant with his equipment and promise, there is, in the technical sense, no compensation, although it is at times thus misinterpreted in lay usage. In fact, such guidance and development is desirable, indeed essential to wholesome development; for the individual is helped to an appraisal of his own and others' assets, and perhaps to a set of values whereby mutual appreciation is promoted among individuals Such appraisal of one's self and of others is quite a different matter from a situation in which a person—young or old—seeks through exaggerated activity to balance, or

more than balance, the strong emotional effects of inferiority or inadequacy in other respects Whether behavior and development in one respect or another is compensatory, then, depends upon their origins and upon the role they play in the individual's *total* activities and forms of life.

Identification

Identification is a special form of compensation in which a person identifies part of his behavior, and sometimes his whole personality, with a model that appeals to him and satisfies his needs. This process expresses itself as an emotional tie with other persons, or situations and institutions The boy emulates the behavior of his father or of the school leader. An alumnus brags of his university's athletic prowess or academic prestige. The rituals of lodges and secret orders give some people an opportunity to identify with the forces and mysteries which these organizations suggest or cultivate Identification may account for the justifiable pride which one may take in belonging to a progressive community or to a great industrial plant in which one feels himself a necessary, though perhaps humble, unit. Sometimes identification is with distinguished ancestry or accomplished posterity, though one may be of little significance himself.

Some identifications may be desirable and serve as helpful ideals, as when a boy envisions himself in the role of a Pasteur or a Lincoln, or a girl in the role of a Marie Curie or a Jane Addams. On the other hand, if the model is vicious or trivial, identification may produce undesirable results in behavior. This may happen when, for want of more wholesome models, boys identify themselves with comic-strip characters, "big shots" and lesser riff-raff among racketeers and other notorious characters. With most individuals identification is moderate and limited in duration, and not unreasonable. But when, in cases of serious emotional maladjustment,

it becomes obsessive and quite irrational, so that workaday realities cease to exist, identification is abnormal in the extreme Such cases occur among those who believe themselves to be Washington, Mohammed, Beethoven, or the like Less serious but still unwholesome forms of identification occur when children or others spend an inordinate amount of time day-dreaming of themselves in roles of models clearly unattainable.

Projection

One aspect of *projection* is the placing of one's unrealized, frustrated ambitions upon another individual with whom he has identified himself. Another aspect of projection is the attributing to another person of one's own faults or socially undesirable wishes When, for example, that other person is seen doing something, his intentions are construed unfavorably, whereas, in fact, these attributed intentions are what one himself would have acted on in the same situation, if he could Or, as another instance, matters that go wrong can be "proved" to be the fault of another, while one's own role and conduct are considered beyond reproach. Parents, and sometimes teachers, attribute to children deficiencies which belong to themselves. As an expression of the first aspect of projection, parents and teachers may impose upon children goals and ambitions to satisfy their own needs or unsatisfied wishes, as when they insist that a child follow a certain course of study and career for which the child might be emotionally or intellectually unqualified The consequence of projection is that one comes vicariously to enjoy the satisfactions of his own repressed desires while getting social approval Whereas reflective thinking would lead to the sharing of responsibility and the creation of a situation more conducive to learning, projection can be destructive of organized thought

The superstitions and taboos of primitive peoples are ex-

treme examples of misdirected thinking, while the term
"fear of God" may still induce a negative attitude in many
people even today, which contrasts sharply with the positive,
social teachings of Jesus Such misdirected thinking is a
form of projection among primitives, and not infrequently
found in our own "scientific" civilization In spite of science
that clears away the devils and ghosts of the pre-scientific
era, it is still possible to block rational thinking and activity
by irrational fears of natural, social, and supernatural forces.

Compartmentalization

Another complex form of maladjusted thought found
often among adults is called *compartmentalization* The vic-
tim of this device has divided his life into separate parts so
that the experiences of one area cannot be used to guide
those in another. He may separate his attitudes during week-
days from those during Sunday, saying or thinking, "Business
is business" and "religion is religion." He may completely
separate his home life from his business life, so that he seems
like two different persons. Even children often adopt one
form of behavior in school—perhaps quite mature—while at
home they still remain babyish in their demands and con-
duct. Although each person must learn to adapt adjustments
to different situations, any thinking that leads toward a di-
vided personality interferes with the possibilities of reach-
ing the maturer levels of development Compartmentalized
thinking and behavior, however, are not the results of a
purely intellectual process; they derive rather from emotional
factors involved in the several areas of behavior concerned.

Displacement

When an emotion, feeling, or attitude is shifted from the
original situation, of which it was a part, to another situa-

tion, we have the process of *displacement*. A child who has been badly frightened by a white animal might thereafter fear all white furry objects Or if frightened on a roof, he might thereafter fear all elevations. Similarly, when children have had painful experiences with a physician or a dentist, they might respond with fear to anyone wearing a white uniform These are instances of displacement which are readily explicable in terms of conditioning (See Chapter XI.)

Displacement occurs also when an individual transfers an emotional response from one person to another if the latter is, for some reason, identified with the former This type is not uncommon, in a moderate degree, among all persons. Some aspect of a new person's appearance, tone of voice, manners, and the like may affect our attitude pleasantly or unpleasantly toward that new person, without our being aware of the cause. This kind of displacement is more complex than that mentioned in the preceding paragraph, yet it has been suggested that conditioning explains this as well For, it is held, one aspect or trait of the new person tends to reinstate the former conditioned situation, thus giving rise to the response.

There are, however, some rather complex behaviors which are not explicable in these terms and which must be referred to the individual's needs and tensions For example, where the emotion caused by a past experience has been strong and is locked in, so to speak, then on a subsequent occasion in a situation which the individual can manipulate, he might give expression to that locked-in emotion, even though the new situation does not warrant that emotional expression Examples of this are the making of scapegoats and "making mountains out of mole hills." In other words, we have here pent-up emotions being expressed in an intrinsically innocuous situation After displacement, the individual may then proceed to rationalize his behavior Displacement, as a form of behavior, is obviously of a kind

markedly different from the process of objective thinking, even though one uses language in rationalizing his displacement.

Rationalization

Rationalization is the process of devising ostensible reasons to justify an act, opinion, or attitude that is actually based on other reasons or motives The rationalizer may not be aware of the fact that he is supplying "good" reasons and suppressing the real reasons for his acts, opinions, or attitudes. Rationalization differs from genuinely reflective thinking in accepting under emotional motivation as the final solution an inappropriate suggestion and then gathering together only the evidence that favors the chosen conclusion. In such situations the emotional "wish" becomes "the father of the thought " Instead of weighing several tentatively accepted suggestions during an appropriate period of "scrutiny and explanation," the rationalizer jumps immediately to an unwarranted "verification" of the suggestion which fits with his emotionalized inclinations. In general, rationalization arises from the need of making incongruities of behavior appear consistent, or to square acts with accepted social norms. It enables one to do as he wishes while escaping, at least in his own view, the consequences of his act. In some instances what the person does is to redefine the situation for himself without necessarily being aware that he is doing so. For example, we have a redefined situation when a person "drinks" rather heavily while under tension, having accepted his own suggestion that it is relaxing to do so; whereas more objective consideration would have led him to some other activity, like tennis, boxing, dancing, and the like.

Even one who prides himself upon independent thinking may be led astray without realizing it himself. For example,

in a political campaign, the rationalizer may claim he is really reasoning, simply because he *considers every argument* presented by the opposition. He may not be aware, however, that he is using the *cumulative* method for his party's arguments and the *segregative* method for the opposition's arguments That is, he piles up and organizes in cumulative fashion all the arguments of his candidate or party so they form a solid unit. On the other hand, he takes each of the arguments of the opposition candidate or party separately, thus segregating a single argument from its support Then he throws the cumulative strength of the arguments of the party toward which he "leans" against the segregated arguments of the opposition *one at a time.* Thus from day to day he disposes of each argument as he meets it and goes into the polling booth believing thoroughly that he has thought reflectively, whereas he has merely used one of the clever devices implied by the term rationalization and completely fooled himself.

A child sometimes exhibits rationalization by ascribing his unpopularity to jealousy of his accomplishments, or he may "explain" his school failures as evidence of the teacher's unfairness or unfriendliness. Similar processes occur in adults. A rival business man owes his success to questionable ethics. An innovation or new suggestion—even among educated men and women—is dangerous, or is deprecated or ridiculed; when as a matter of fact it may merely be something that threatens the vested interests or runs counter to the attitudes of the deprecator or ridiculer. Some rationalize smoking and drinking by insisting they steady the nerves In this "psychic mechanism," the truth or untruth of the claims is not involved, for there may be some degree of truth in some claims. But their degree of truth does not affect the issue of rationalization. The significant point lies in the purpose they serve namely, to find laudable reasons in order to conceal the unacceptable real reasons which motivate the individual at

the time. Unfortunately, the extensive use of language and thought does not keep one safe at any age from deluding one's self.

The various forms and degrees of "psychic mechanisms," which are related rather than entirely distinct, and several of which may be found operating at the same time—compensation, compartmentalization, projection, identification, and rationalization—symptomatic of degrees of emotional conflict and at times evidence of unsound thinking, may be considered as steps on scales that run from sanity toward psychoses. A psychotic person is one who changed gradually, usually over a long period, from a relatively sane and socially adjusted life through minor maladjustments to more serious emotional difficulties, and then to such extreme aberrations that he can no longer live in a community without disturbing its members unduly When he reaches this extreme stage, the emotionally maladjusted person is an appropriate subject for psychological or psychiatric treatment, in the same sense that a person seriously ill with a commonly understood bodily ailment is subjected to medication. It is to be noted that a psychosis implies that a "mind" or organized pattern of behavior had been developed and later became disorganized As has been indicated throughout the discussion, emotional stability is an achievement integrated with organized, intelligent action; while maladjustment is a state of disorganization, existing in various degrees of intensity and extensity, resulting from emotional conditions that produce continually disrupted behavior.

Sublimation

Sublimation, is in its strict sense, the process of redirecting the energies of the sexual impulse (the *libido*) to new objects or aims which are of a non-sexual and socially sanctioned kind. As such, therefore, sublimation is of especial

significance as a "psychic mechanism" during the second decade of life when the individual must conform to mores and taboos, and must deal with educational and economic realities (See Chapter VII) Sublimation helps one to avoid the embarrassments of socially prohibited acts and gives an outlet for strong pent-up energies and dissatisfactions Social guidance is essential here as elsewhere; for correct sublimation is as much a matter of education as is any other form of activity Sublimation of the libido may take form particularly in esthetic activities, as in the composition of poetry and music, in painting and drawing, in the drama and dancing; or it may take the form of strenuous physical activity

Even if such esthetic and physical activities do not solve problems permanently, for they may not remove the profounder causes of conflict and dissatisfaction, they are still valuable. For, an emotional catharsis—which sublimation provides—is very valuable in situations where one is genuinely incapable of surmounting the real difficulties causing the emotional tension. Catharsis may prevent the intensification of emotional reactions to the point where they become detrimental to mental health and may disorganize behavior. Whether wholly effective or not, some forms of sublimation appear necessary to help restore equilibrium on account of the inevitable restrictions of social living Tensions cannot always be disposed of by direct means, since the interests of others and established practices may require restrictions of some kinds

Possible Role of the School

The responsibility of the school lies in assisting the home and other community agencies in providing for each growing individual appropriate guidance and opportunities to organize activities of his own over a long period of years. Thus with guidance and assurance of support, he moves up the

scale of development day by day in spite of the obstacles, conflicts, strains, and confusions that may beset his path In the preschool years, the home establishes in him a sense of security in its affections and at the same time gives him opportunities for motor activities in which he achieves organized living The school takes up the task of broadening the base of social activity and companionship and of extending the opportunities for motor, visual, and intellectual organization without disrupting frustration during the elementary-school years The secondary-school, the home, and the community add to these responsibilities that of healthy social-emotional relations between girls and boys of adolescent age, together with guidance and opportunity in vocational and political preparation so that they may achieve a place of security and understanding in the community As young people leave the public school, the community has responsibility for providing self-supporting employment that will make possible in most cases the continuation of the social cycle in the lives of a new generation

To what extent the improvement of parent-child relationships in the home, the reorganization of school activities to meet the needs and abilities of children, the guidance of adolescents toward appropriate vocations, the solving of the unemployment and other economic problems, and the needed modification in sexual relationships may reduce the large number of minor and major maladjustments that interfere with learning, work, and happiness is unpredictable At the present time, however, it is evident that emotional stability is an important aspect of human development, which may not be neglected and to which every one of the above relationships and agencies can contribute significantly.

Activity and Emotional Development

The relation of the individual's constructive activities to his emotional stability may be illustrated further by considering a few of the steps in the *Vineland Social Maturity Scale* classified under the category of "occupation" Within the first year of life the normally maturing infant learns to occupy himself, for a quarter hour or longer, perhaps with a rattle or other object, without being attended by anyone and without emotional crying In the second year he amuses himself with pencil or crayon and performs useful errands on request to very nearby places The two-year-old initiates his own play activities and for appreciable periods requires no "looking after " The three-year-old exhibits social maturity and emotional stability when he helps feed the dog or set the table. During several succeeding years, occupations expand largely in the use of toys, such as wagons and scooters, outside his own yard with some supervision, in spite of the hazards involved This play development leads at about the eight-year-old level into the fairly competent use of hammers, saws, household utensils, and garden tools, activities which seem more like responsible work than irresponsible play The relatively mature child of ten has advanced to receiving some remuneration for odd jobs of various sorts, and many readers will remember the emotional satisfaction and sense of worth that came to them with the first money earnings. The fortunate youngster enhances his emotional stability in his early teens as he takes responsibility for routine household, farm, or shop tasks. High school graduation is followed in many cases by the taking of a job or the beginning of vocational training, either of which, if appropriate to the person, requires and develops emotional stability On the adult level the occupational activities may rise through systematizing one's own work to management of the work of others, or to the performance of expert and professional

work in which the individual is able to create his own opportunities The significance of such a sequence of occupations lies, among other things, in the fact that each one is both evidence of emotional stability on a certain level and a means of development to a higher level of emotional organization. The road to emotional maturity lies to a considerable degree in the constructive occupations of a workaday world.

Social Organization and Emotion

The correction of rationalization and misdirected thinking of all sorts often involves the use of scientific method, but in some cases the methods of scientific testing do not cover the whole problem directly. In motor skills, visual insights, mathematical and biological problems, and others, the solutions reached frequently can be tested in action. Thus activity, as contrasted with mere verbalism, becomes at once the means of escaping from overflowing emotions and at the same time the means of testing conclusions and thus reaching correct ones When we approach such large problems as the relation of the democratic form of social organization to emotional stability, however, it must be admitted that the profusion of scientific facts, which may help us in making a choice between democracy and dictatorship, do not constitute a test of the ultimate results No one can predict with complete accuracy the effects of a new social-economic movement After making an analysis of emotional instability and stability, we can judge, however, the extent to which fundamental factors, such as individual activity and personal security, are supported by a democratic or a dictatorial regime.

In modern dictatorial governments the group of persons who "belong," who conform without question, are given a feeling of unbounded superiority, based upon blind acceptance of dogma and upon a false "science." The development of human intelligence is thus distorted and arrested. Other

people in such societies, at the same time, are denied the opportunities to develop their potentialities and are frustrated in their attempts to satisfy their basic needs, particularly those of "belonging" and of "security " For, as Prescott states· "A person cannot be adjusted even reasonably well unless he believes in himself, unless he feels that he has attained a worthy and effective selfhood The coordination and unification of all desires and operational concepts until they are fused into a unity which gives rise to consistent behavior is, then, an ultimate need of the personality " [7] This need, called the *integrative* need, must be based upon dynamic and widening spheres of experience.

In dictatorial governments, social, biological, and physical sciences are restricted and distorted to suit the purposes of those in power. In such states, the individual who belongs, who is accepted, who has social merit, is the one who adjusts to the rigid, selected, and dictated stereotypes and attitudes But such persons will be socially adjusted only as long as their society is static, and as long as only those experiences and such knowledge as will fit the fixed pattern are admitted within range of perception and apprehension But life and society are dynamic and evolving in respect to relationships, organization, and values The individual, therefore, who is adjusted in a dictatorship will not be adjusted when he has to face—as he probably must eventually—a dynamic society, for he behaves by stereotypes and his behavior is integrated only within a very narrow framework. If his rigid, dictatorial society should survive, he might spend an adjusted lifetime within its very narrow framework, even though it is a lifetime of arrested development. But the history of social evolution reveals that man's needs and potentialities for development are such that sooner or later he seeks to create a society wherein these may find satisfaction.

By its very nature, the dictatorial state must have a very

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[7] Daniel A Prescott, *Emotion and the Educative Process,* p 118

small ruling class, while the vast majority of the population are subjugated, their full development denied, their basic needs frustrated or distorted. In dictatorships, the vast majority of the people are, in fact, utilized and exploited *to express the motives and desires of the dictators* For the philosophy of dictatorship is, "You are nothing, the state is everything,"—a philosophy wherein only the very small ruling minority who identify themselves with the state— indeed, *are* the state—can find their self-realization In democracies, on the contrary, it is believed that faith in one another, willingness to share in common causes, respect for diverse personalities, as well as decisions and behavior rationally determined, are all aspects of social living that contribute substantially to emotional stability Following this belief we continue in the schools to plan and execute experiments in the democratic way of life and in the full development of all persons for such a life.

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XIX

SOCIAL ORGANIZATION

LEARNING TO live and work with other persons is a step beyond the organization of personality implied in emotional stability, although the two aspects of education are intimately related Social organization involves the use of individual abilities in such fields as motor skill, visual insight, reflective thinking, and esthetic taste, but social relations must go further than the incidental contacts that occur during the acquisition of such abilities by any individual More and more in modern society the life of an individual depends upon the quality of his relations with his fellowmen. Even the independence so highly valued in a democracy is to be maintained and enhanced through interdependent social arrangements Accordingly, we turn to social organization as a special aspect of the individual's educational development to inquire how it occurs, how it is related to other aspects of learning, and what forms of social organization are most promising for human development.

Experiments with Children in Social Organization

Taking the last inquiry first, students, teachers, and parents in the United States are inclined to assume that democ-

racy is the form of social organization which gives each individual the fullest opportunity for development in every aspect of his life—motor, intellectual, emotional, esthetic, and social. This assumption is sharply challenged today by totalitarian states with dictatorial forms of social organization. Nevertheless, as is the case in a representative democracy, the welfare of the mass of the common people is *claimed* as the purpose of the political organization, whether it takes the form of communism, fascism, or national socialism The challenge to democracy must be met by going beneath the rival claims to see what are the effects produced upon the individual in each case, and to define more clearly the characteristics of social democracy.

For guidance in regard to the distinguishing characteristics of democracy we turn to a series of experiments conducted with scientific care at the University of Iowa.[1] Three forms of social organization were compared as each affected the behavior of ten- and eleven-year-old youngsters in clubs devoted to various construction projects, such as the making of theatrical masks and model airplanes. Autocratic or dictatorial control was compared with a "laissez-faire" policy and with democratic social organization. The three groups of children were interchanged during the experiments and the different teacher-leaders assumed the different roles at different times, so that the scientific reliability of the results was reasonably assured.

In the laissez-faire organization, which may be interpreted as a "let alone" policy in accordance with the economic theory from which the term is derived, the leader was *apart from* the group. The members of the club did as they pleased, while the leader only helped them when requested, without adding any suggestions on his own initiative Many

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[1] Ronald Lippitt, "An Experimental Study of the Effect of Democratic and Authoritarian Group Atmospheres," *University of Iowa Studies in Child Welfare*, 1940, vol 16, no 3, pp 45-193

persons would call such a procedure democratic because the individual is *free* to do what he wants, but observation in dicates that the lack of leadership characteristic of laissez faire brings the group closer to anarchy than to any effective social organization [2]

The autocratic procedure in this experiment was not extreme, for the leader was not unfriendly He did, however, keep the organization and plan in his own hands, placing the children in certain groups and telling them what to do one step at a time Thus he stood *above* the members of the group, distributing praise and blame for good or poor work.

The democratic leader, on the other hand, seemed to be *in* the group. Although he made suggestions, these were sometimes accepted and sometimes turned down The whole project was understood by the group members so they could go forward with it themselves. The democratic leader pointed out, objectively and impersonally, improvements needed in the work as it went along; but he did not hand out praise or blame in a personal way. Thus in this experiment democracy is interpreted as a form of social organization in which leadership occurs in a cooperative atmosphere Neither a negative attitude of allowing the group to do as they please without guidance nor even a benevolent directing from above is accepted as democratic procedure.

Some Results of the Experiments

How do learning and production progress under these three ways of organizing and leading the group? Judging by the quality of the objects made, democracy is ahead in efficiency. The work was done more carefully, the group

[2] Kurt Lewin, Ronald Lippitt, and Ralph K White, "Patterns of Aggressive Behavior in Experimentally Created 'Social Climates,'" *Journal of Social Psychology,* 1939, vol 10, no 2, pp 271-299

members made more suggestions for improving the work, and fewer of them left their part unfinished in the democratic groups Why did the reputed efficiency of dictatorial direction or laissez-faire freedom fail to bring superior results?

The answer is found mainly in the social-emotional attitudes of the youngsters toward the adult leader, toward each other, and toward the work itself—the attitudes being related in all cases These attitudes affected both the occurrence of suggestions and the communication of ideas among the group members. In the autocratic or dictatorial form there was some resentment against the leader because he was pushing them on to get done in a hurry. At the opposite extreme, the children were annoyed by the indifference of the laissez-faire leader and complained that he was "too easy going" and "had too few things for us to do " The youngsters' attitude toward the democratic leader was no mere half-way point between two kinds of irritation, but a positive feeling of approval shown by calling him a "good sport" because he "worked along with us and thought of things just as we did. He never did try to be the boss, but we always had plenty to do. Just the right combination " The attitudes of these ten- and eleven-year-olds indicate that leadership of a constructive kind is necessary in a democratic organization and can exist in harmony with growth of initiative upon the part of each member of the group.

The attitudes of the group members toward each other were often a reflection or indirect result of their attitudes toward the leader. In one autocratic group, the boys began to pick on Tom, who had been popular enough originally so that only one hostile remark had been directed at him during the first meeting of the club. At the fifth meeting, 31 antagonistic comments were made to or about him, and in the sixth meeting there were 13. Then he left the group, with the excuse that the doctor thought it would be better

for his eyes if he played outdoors during the club time! (An instance of rationalization) At the next meeting the boys turned upon Joe, who had hitherto never been attacked by more than 8 hostile remarks during a single session. The record for that session was 15, for the next 26, and finally 40 verbal attacks were made on Joe at the following session. Joe then quit the club It appears that this venting of feelings on a scapegoat was a result of the feeling of repression and tension under dictatorial leadership, for no such serious and intolerable conditions developed in the groups under democratic leadership It seems logical to connect these hostile attitudes toward individuals with the persecution of racial minorities in totalitarian states

The way in which individuals sought to rise to superior status again indicated the effects of different forms of leadership In the autocratic groups some sought preferment by being very submissive to the leader, like the perfect teacher's pet, while others tried to rise by pushing their classmates down. In both cases their eyes were upon their own position in the group, while in the democratic groups the members kept their attention on the work and rose in status by greater care and persistence in the work of construction, and by offering more intelligent suggestions. The problem of attention in learning evidently involves the direction of the purpose, whether chiefly upon one's self or upon the joint project of the group The self-centered situation reduced while the group-centered situation promoted effectiveness of the work.

In the laissez-faire situation there seemed to be tension caused by the absence of a comprehensive plan of cooperative action. Freedom without an aim resulted in the children's interfering with each other. There were more aggressive actions under laissez-faire than under either authoritarian or democratic control. The average number of aggressive actions per meeting for laissez-faire were 38, for aggressive autocracy, 30, for democracy, 20, for the kind of

autocracy which creates submission and apathy, 2 The tension beneath this apathy is indicated by the fact that when the leader left the room the number of aggressive acts quickly rose to ten times its former level While the attitude of personal aggression exists in a social, democratic group, it is not so prevalent as under laissez-faire or dictatorship The main point is that tension is reduced by proper social organization rather than by the unorganized, misnamed "freedom" of laissez-faire As has been shown elsewhere, ten- and eleven-year-old youngsters are relatively mature in many of their abilities and in their social attitudes, so it is valid to conclude that similar types of social organization produce similar reactions among adults. Consequently, the application of these experimental findings, which came out of the experience of ten- and eleven-year-olds in school projects, to economic and political life on the adult level outside the school would carry us far into a tentative reorganization of business and government

In regard to cooperative attitudes and actions, there was a profound difference in favor of social democracy The children used the terms "we," "our," and "us" twice as frequently in the democratic as in the autocratic régimes. Although the democratic leader never assigned the members to work together in sub-groups, they voluntarily did form such sub-groups and worked in cooperation most of the time. The autocratic leader tried to assign group work, but groups disintegrated as fast as he formed them. Since the same children who showed cooperative behavior under democratic leadership also showed individualism and dependence on the adult leader under dictatorship, we conclude that their capacity to work together depended not so much on their own character as upon the situation in which they were placed The inference for social practice is that the acquisition and continuance of democratic or cooperative attitudes depends upon living under such conditions In other words,

democracy in the life of child, youth, or adult is a function of his own democratic experience *and* of carefully designed forms of educational, social, political, and economic organization of democratic type

Effect of Change of Social Organization

It must not be assumed, therefore, that the acquisition of desirable social attitudes in group projects at school will enable youngsters to maintain such attitudes throughout life under *other* forms of social organization Indeed, in this very experiment, change from one kind of leadership to another seemed to alter greatly the attitudes of the children. Although they were not treated unkindly and were not acutely uncomfortable during autocratic control, there was less smiling, joking, general conversation, and freedom of movement than under democratic leadership Professor Lewin describes how the group reacted as they were changed, without being aware of it, from a democratic to an autocratic leader "There have been few experiences for me as impressive as seeing the expression in children's faces change during the first day of autocracy. The friendly, open, and cooperative group, full of life, became within a short half-hour a rather apathetic-looking gathering without initiative." [3] Before we leave the discussion of the Iowa experiments, let us quote also a warning and a suggestion from Professor Lewin·

"I do not like to conclude without cautioning the reader against a too quick generalization. It is not the purpose of these experiments to test 'the' democracy, the 'ideal' autocracy, and 'the' situation of laissez-faire. Obviously a great variety of each of these climates is possible. The purpose of the experiments is to study the dynamics of the factors involved rather than to copy historically-given examples.

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[3] Kurt Lewin, "Experiments in Social Space," *Harvard Educational Review*, 1939, vol. 9, no. 1, pp. 21-32.

Nevertheless, certain conclusions as to the value of the different climates for education might readily be made. In addition, one general outcome might be stressed

"These experiments point anew to the great possibilities vested in education, and to the responsibility given to moulders of young lives which are so sensitive to the present social climate and so dependent upon it." [4]

Some Implications of the Experiments

The evidence from these experiments and from other sources indicates that social democracy promotes a fuller life for the individual through a number of related channels. In the first place, democracy can give greatest efficiency in production due to care, intelligent suggestion, and persistence. From the economic standpoint greater quantities of goods and services of higher quality are available for each individual member when groups, large or small, work together cooperatively with democratic leadership in their production than when the leadership is dictatorial or when leadership is neglected in a laissez-faire procedure. Furthermore, each individual will feel happier in a social democracy because he has the security of membership in a group project that he understands. The reduction of personal antagonism to a minimum, the consequent promotion of objective criticism of the product rather than of the producer, and the elimination of concentration of antagonism on scapegoats, all give a firm social-emotional basis for the individual's daily living. The fact that individuals in a social democracy find more time and encouragement for friendly social intercourse not directly connected with their work responsibilities suggests room for esthetic production and appreciation. Thus social democracy seems to furnish the

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[4] Kurt Lewin, "Experiments in Autocratic and Democratic Atmospheres," *Social Frontier*, 1938, vol 4, no. 37, p 319

best atmosphere for all forms of constructive learning—skill, insight, thinking, and esthetic—as well as emotional stability In addition, social democracy furnishes a pattern that promises well for adult living in which education continues within the framework of vocational and political responsibility

This happy prospect of cooperative leadership in a democratic form of social organization must face the actual situations in our schools and communities and overcome many difficulties before it can become a prevailing reality So we turn to consider the actual means that can be used both in developing the requisite social abilities in children, youths, and adults, and in instituting the appropriate forms of social organization. Elsewhere we have traced the beginnings of democratic attitudes in children from infancy to six or seven years in the family, the nursery school, the kindergarten, and the early elementary grades. Also we have pointed out the growing capacities of older children and adolescents for democratic responsibility. The necessary changes and supporting conditions have been outlined. All these considerations point to the fact that fundamental changes are required in homes and schools in order even to experiment adequately with democratic proposals and test the results of democratic living.

Since democracy does not preserve itself inside an individual even after the appropriate social-emotional attitudes have been generated in him, children and youths must not only engage in democratic living in school, but they must learn to create and maintain democratic forms of social organization outside of it as well Democracy requires for its preservation and development certain conditions both in the organisms and in the environment. The intelligent planning and organizing of democratic life becomes gradually a renewed responsibility of each emerging youthful generation.

Educational Procedures Related to Social Organization

The discussions of conditioning and pseudo-mechanical repetition make clear the proposition that non-democratic methods of teaching and learning cannot be used to produce democratic attitudes and certainly do not fit into democratic forms of social organization Conditioning ties the child firmly to the customs of the preceding generation, thus cutting off the possibilities of intellectual and social change that democracy assumes Pseudo-mechanical repetition, while it is less deeply seated in the emotional aspects of life than conditioning, likewise ties us to the statements and pronouncements of various authorities who thereby become in effect dictators over us Neither conditioning nor pseudo-mechanical repetition gives the individual freedom to participate in a social group as an intelligent member and promoter of the common interest. The trial-and-chance-success approach to learning is less restrictive; for it gives the struggling individual freedom of random movement within a limited area, but it does not effectively promote either personal insight or social communication. The processes of trial-and-chance-success might be compared to those under laissez-faire policy in the common absence of guidance and in the personal insecurity generated. Thus social democracy is both a method and a goal that tends to reduce to the very minimum in schools and in life generally such approaches to learning as conditioning, pseudo-mechanical repetition, and trial-and-chance-success, because, besides being relatively ineffective approaches to learning, they are much more closely related to dictatorship or laissez-faire and thus are incompatible with the development of democratic attitudes and the establishment of democratic forms of social organization

It is evident to anyone who is acquainted with schools throughout any considerable area that non-democratic prac-

tices are common This fact should be no cause for wonder, since we all know that democratic living is a relatively recent form of social organization The human tradition is more autocratic than democratic History presents many more emperors, kings, and dictators than democratic political leaders The family with its great differences in age between parents and children has in most cases been an autocratic organization with power in the hands of the elders Religious organizations commonly have required their members to obey an ordained head or at least a group of "elders." In economic life the master and slave relation has changed slowly through lord and serf, to "boss" and "hand," or to employer and employee without achieving any notable degree of democracy except in rare instances, until very recently. The schools have advanced slowly from master-and-pupil conditions to teacher-learner relationships that give promise here and there of achieving comradeship With the heavy hands of autocratic tradition holding back the attempts to progress toward democracy both inside and outside the school, the task before us involves much clearing away of old customs in order to permit the establishment of new, democratic practices

Formality in the school room is an ancient procedure that prevents democratic living and thereby interferes seriously with constructive learning of every sort. The typical old-fashioned classroom with its straight lines of fixed desks carried with it the tradition that no pupil was to move from his desk except upon the orders, or at least the permission, of the teacher. No child was to speak even in a whisper except at the bidding of the teacher-dictator. Such limitations of movement and communication strike at the roots of personal development which depends upon activity and social interchange of ideas. This deadening formality arose in medieval times when a fallacious psychology and philosophy separated mind from body and assumed that both child and

adult learned by mere "mental exercise" without bodily in-
volvement and actual trial The further assumption that all
learning came from the ancients or from "On High" also
supported the dictatorial and formal transmission of learn-
ing through the textbook and the teacher.

The experimental approach of modern science requires
a notable change in the learning process, but schools have
lagged seriously in adopting the more active attack with its
accompanying informality So a first step toward social dem-
ocratic education involves freer movement by the individ-
uals upon their own initiative and wider opportunities for
communication. Such individual movement and group com-
munication are often facilitated by rearrangement of desks
and by their mobility, but the essential requirements are
appropriate opportunities for movement and communica-
tion upon the part of the learners and the teacher The
degree and character of the informality will evidently vary
greatly from the nursery school and kindergarten through
the elementary school and the junior and senior high
schools It is also evident that the character of the subject
matter from science and mathematics to literature and social
studies will have some bearing upon the degree of formality.
The main point is to avoid all formality that is dictated
merely by traditions and to use only those forms of organi-
zation that promote the learning activities and contribute
to fuller communication between teacher and learners and
among the learners themselves.[5]

Since we seek social organization, it is evident that the
avoidance of formality is merely the negative aspect and that
positive planning is necessary The character of the social
organization is to be determined then by the needs of the
learners in the particular school situation Some learning
may occur through individual activity almost independent

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[5] William Bruce, *Principles of Democratic Education,* Prentice-Hall, New
York, 1939, Chapter 2

of the teacher or the other youngsters, as in the case of a five-year-old climbing the jungle-gym for the first time, or a senior in high school reading a poem silently In most cases, however, the learning is enhanced by social approval, by observing the activities of others, or by sharing in the selection and investigation of an area of interest common to the whole group.

Any class constitutes a social situation in which the members need to become aware of the requirements for the progress of each individual. If relative silence is necessary, as in some library work, this formal requirement rests upon a sound democratic foundation rather than a mere dictatorial rule In a similar way the arrangements made for free group discussion, involving such formalities in larger groups as addressing the chairman before speaking, have a democratic basis. Often it is possible to reduce formalities of this sort as the members of a group come to recognize and to be sensitive to the rights of each other to a share in the discussion time and as they acquire a genuine desire to hear the other person's point of view. Social organization is necessary; but the degree of formality depends upon such factors as the size of the group, the purpose in view, and the social-emotional maturity of the members Thus a democratic social organization may have many different forms appropriate in each case to the conditions faced.

Effects of Competition and Rewards in Schools

Competitive marking systems constitute another tradition that may interfere seriously with democratic social organization. The claim has long been made that competition stimulates activity, and this assertion scarcely can be denied as far as crude activities, such as running a short race, are concerned. Before the claim is accepted too broadly, however, one should note that in a long race, for example a race

of a mile, while there is still competition to win, the runner must judge his own pace for each quarter and not be misled by the direct stimulation of the competitor who leads out too fast in the first quarter mile As one meets complex phases of education, more attention must be paid to the activity itself and less to the progress of any competitor So even in regard to the stimulation of the individual's activity, striving for high marks may not always contribute to the broad, intelligent kind of work necessary.

A still greater danger is that competition interferes with social communication Like the practice of competitive business, information may be held privately as a secret for the purpose of leaving the other fellow behind in the race This attitude of isolated, selfish learning is in direct conflict with the scientific practice of free communication of information and the democratic attitude of sharing ideas in a group Competition also cultivates personal antagonisms and often results in emotional attitudes that are anti-social. The pupils who receive low marks become discouraged and envious of their more fortunate classmates, while those who receive high marks are always in danger of becoming egotistical and snobbish. The evil effects of competitive marking have been reduced perhaps by the fact that a majority of the pupils have disregarded them and thereby avoided many of the bad effects It is evident that the theory of competition as the motivating factor of life is based upon a false psychology of extraneous rewards. According to the doctrine of competition, human beings, even children and youths, are supposed to be inactive, essentially lazy, and selfish, so they must be stimulated by some reward or recognition that places them above their neighbor. This misleading picture of humanity, and especially of childhood and youth, is probably a rationalization based upon a competitive money-making economic system

Furthermore, the attitude of pupils and students toward

learning is adversely affected by the competitive system
Their attitudes and purposes are directed toward merely
following the prescriptions of authoritarian teachers who
are the dispensers of rewards—a poor substitute for learning
as a means of development and self-appraisal Schools must
rid themselves of this old custom of treating pupils as com-
petitive mark-chasers before social democracy and more ade-
quate personal development can be achieved in classrooms [6]

The relegation of competitive marks to the heap of dis-
carded school practices should not be advocated without
offering positive substitutes for the functions marks are sup-
posed to fulfill In place of motivation through competition,
the student of development sees clearly the interest in vari-
ous activities so characteristic of children In many cases no
extraneous reward need be offered beyond that which comes
out of satisfaction in the activity itself and the immediate
value of the product obtained. The other supposed function
of a mark is that of a measure or evaluation of progress
Both the teacher and the learner, and frequently the parent
or employer, should know what progress is being made At
this point educators and others are coming rapidly to the
view that concrete statements of reading ability, emotional
stability, and other characteristics and aspects of personality
are more significant to all concerned than such a symbol as
85%, B, or "passed." To the extent that the learner can
participate intelligently in evaluating his own progress spe-
cifically, he acquires the personal responsibility which is one
aspect of a social organization in which self-critical individ-
ual participation is required. (See Chapter IX)

It is possible also to provide social arrangements whereby
group approval for specific contributions to group projects
is distributed generously to *all* the members of the group
rather than being confined to those whose accumulated con-

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[6] William Bruce, *op cit*, Chapter 3

tributions give honor marks As the child or youth gradually learns to evaluate his own progress in concrete terms, he also learns to look farther and farther ahead to more distant and more significant goals His persisting and far-reaching interests become the principal guiding and motivating factors in his life As each higher stage of maturity is achieved, the need for extraneous rewards offered by a benevolent autocrat disappears, and in its place arises an intelligent pursuit of interests that are at once individual and social-personal and shared. Abstract, meaningless, competitive marks are being replaced by concrete, meaningful evaluations made jointly and democratically by the individual and the group to which he belongs. Although there are many other old customs from our autocratic tradition besides classroom formality and competitive marking that obstruct democratic social organization, these two areas may serve as sufficient illustrations.

Several Misconceptions Regarding Democratic Education

We turn now to certain aspects of the democratic tradition itself that cause misunderstanding and interfere with progress One of these sources of weakness in organization is the notion of similarity or near-similarity of educations, based on the erroneous assumption that what is educationally desirable for one group (usually the "intellectual") is also desirable for others. Any student of development knows that differences in characteristics and inequalities in abilities are shown by every scientific test of the members of unselected groups, from infancy to adulthood While we may strongly affirm equal rights to any individual before the law in spite of race, family, poverty or meager ability, we recognize clearly the fact of individual differences Democratic education implies that these differences should be

provided for in educational plans Democracy whether in
the nursery school, the high school, or the adult community
is a social organization of unequal and diverse individuals

A second fact, not fully recognized, is that social organiza-
tion involves leadership There must be a coordination of
the activities of the membership in achieving an objective
similar to the coordination of the arms, legs, trunk, and
head that occurs in the body under the leadership of the
brain when an act of skill is achieved successfully The ideas
of equality, majority rule, rotation in office, and the like
have combined to mislead us into the notion that democ-
racy consists of the absence of organization and the denial
of leadership Consequently, when leadership and organiza-
tion are required by a crisis—whether in a schoolroom or in
the national government—many people think that the only
solution is to resort to authoritarian or dictatorial leader-
ship As we have seen, laissez-faire or the neglect of lead-
ership and organization is not an effective substitute for
dictatorship Democracy, on the other hand, consists in es-
tablishing and maintaining a more or less complex form of
social organization in which leadership is sensitive to the
needs of all members of the group and takes a cooperative
attitude toward the membership. In other words, police,
judges, and politicians, for example, are servants of the peo-
ple rather than bosses. Leadership is a form of service to the
community It is quite unlike the leadership in a dictator-
ship which exploits "the people" and utilizes them for the
satisfaction of the leaders' desires.

Can children, youths, and adults learn to establish and
maintain democratic forms of social organization without
reverting to formality, competitive marking, and other as-
pects of dictatorial procedure? In the first place, genuine
democratic leadership arises from popular choice—the choice
of the majority. If we go back again to the five- or six-year-
old level, where leadership is beginning to show itself in

play groups, we find a few kindergarteners choosing to follow, perhaps for a few minutes, the leadership of one youngster. If this leader becomes too dictatorial, one or more of the individuals leave and the group disintegrates On the other hand, the successful leader on the early childhood level may, through his recognition of the interests of each individual, maintain his organization and leadership from day to day Such episodes in democratic organization on the child's level represent in miniature the operation of voluntary adult organizations, such as clubs, schools, and political parties

On the adult level, although the leader is chosen by the more formal methods of voting, he is still the popular choice, and members may still drop out or change leaders when the leadership fails to recognize their interests So the recognition of common as well as diverse interests underlies the maintenance of leadership in a democracy A free flow of genuine communication must be maintained between the membership and the leadership so that this mutual recognition of interests is maintained. Provision needs to be made for change in leadership whenever such change promotes the unity of the organization Thus organization of a democratic kind is permanent, whereas the personnel of the leadership can change from time to time

This flexibility or adjustability of representative democracy gives stability to the social organization, whereas dictatorship employing force to maintain itself must be destroyed by force—either from some group outside or by revolution of the members within the organization Learning to choose leaders, to inform leaders, to shift leaders, and to follow leadership, then, is an aspect of democracy, while the leader himself, though presumably creative, becomes also the avenue of group thought and action As the brain is a coordinating center for the visual patterns coming through the eyes, the feelings mediated by the visceral or-

gans, and for the muscular activities, so the democratic leader sees through the eyes of the members, feels their pains and pleasures, and suggests appropriate actions upon the part of the whole membership Experience in being a leader and being a participating group-member constitutes a way of social learning that can be provided daily in the home, the school, and many other groups maintained in a democracy from early childhood throughout adult life.

Voluntary and Involuntary Groups

Although voluntary organization lies at the root of social democracy, the student of human development needs to recognize that the child, youth, and adult encounters many organizations that *for the individual member* have a compulsory character The family, the school, and the government are typical of relatively compulsory organizations, which by this very fact are difficult to maintain at the high level of democracy which the voluntary character of many organizations supports Children cannot choose their parents, so the family is, for at least a few years, an organization they are compelled to join. For that matter, the parents also have at best little opportunity to determine what *kind* of children will enter their family, due to the complexities of inheritance. Of course, foster parents and foster children can establish family relationships upon a more voluntary basis. In any case, the superior age and strength of parents along with the dependence of the young child makes it difficult to avoid dictatorial family relationships. As the children reach a degree of independence, a laissez-faire policy is apt to be established by the parent who recognizes the evils of dictatorship, but the development of democratic leadership in the family with a recognition of individual and mutual interests is a difficult step that involves careful planning Cooperatively conducted families in which leadership

may be shared by the different members at various times and in which the members feel their desire to maintain the family *voluntarily* are still too rare.

The school, like the family, *began* as a voluntary organization of adults into which children came under compulsion. While parents voluntarily constitute a family by marriage, they do not ordinarily form a school in the same way The school in most cases is a public organization to which parents are compelled to send their children. Teachers should remember this fact and seek to avoid the dictatorial attitudes which may arise out of the force of the law that exists behind school attendence Teachers of beginners almost universally attempt to bring these five- or six-year-olds and their parents to the feeling appropriate for voluntary attendance Then the teacher goes on to provide opportunities for voluntary organization within the class in the hope that eventually every child in the room will develop some feeling of affection toward all the other children The teacher's own place as a leader in the classroom, whether at the nursery-school or the college level, should gradually achieve a voluntary basis as the children or the students come to recognize the value of such leadership as *part* of the whole system of democratic social organization Any compulsory institution, such as the public school, must be sensitive at all times to the need for promoting leadership and democratic social organization within the legal framework that maintains the institution.

As the individual comes into family and school membership without his voluntary consent, he also becomes a citizen of his nation with certain responsibilities placed upon his shoulders At some time in the past his government began as a voluntary organization, but if he would repeat that historic episode he must become a revolutionist. To the extent that our government remains democratic, many necessary

readjustments may be made without there being a need for any person or group to start a new American Revolution

It would appear that the kind of treatment accorded individuals in the small compulsory but democratic organizations of which he may become a member from time to time, should establish a strong preference for the democratic way of life. To the degree that such an attitude toward democracy is established among citizens, young and old, even governmental democracy, with its complex laws and regulations that cut across many of our individual preferences, becomes a chosen, accepted, and therefore voluntary way of life and social organization In other words, we learn at last how to live democratically in groups as large as nations, or even world-wide associations of nations, and thus we maintain conditions that promote the fullest possible human development toward emotional stability, esthetic taste, scientific and reflective thinking, and efficient control of man's physical and social environment.

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PART IV

Problems and Prospects

XX

PERSISTING PSYCHOLOGICAL PROB-
LEMS OF LEARNING AND
DEVELOPMENT

THE SELECTION of topics and problems for presenta-
tion under a heading such as this chapter carries is
largely a matter of an author's preference and estimates of
importance Otherwise he would have to write a history of
psychology, or at least a survey of modern trends This chap-
ter, therefore, does not pretend to be comprehensive in its
treatment, nor does it pretend to include all the psycho-
logical and developmental problems that can be regarded
as of major importance For our purposes, we shall present
a few of the topics which are of prime importance from the
viewpoints of education and democratic living.

Learning

Throughout this book, we have been concerned, in one
way or another, with the subject of learning, for certainly
psychological and social development always implies learn-
ing Also, we have examined the several approaches to learn-
ing for the purpose of evaluating their contributions to

development, especially for life in a democratic society Undoubtedly, we know today vastly more about the conditions of learning and the results of various procedures than was known as recently as twenty-five years ago As a result of our increased knowledge, we are able to maintain, for example, that learning with insight is much more effective in promoting mental development than is learning by conditioning, particularly in the case of persons who are to engage as self-critical participants in their societies. As another example, we can maintain that learning is the more effective if it is adequately motivated in the learner. This conclusion leads us to take the position that the "child-centered" school, which is sensitive also to community life, is superior to the older type of institution in which drill, repetition, and entirely adult-imposed tasks were the essence of education. Also, we can maintain that if there is to be "transfer of learning," transfer must be made an objective of the teaching process so that learners seek wider meanings in their experience, and, furthermore, transfer value is not restricted to any one, select group of school subjects. On the more nearly mechanical side of the learning process, it can be maintained—to take two instances—that distributed practice periods are preferable to their concentration and that learning by wholes of the appropriate size is preferable to learning by small parts

Unquestionably, parents and educators today have at their command and for their use psychological materials and principles which can make learning an engrossing, dynamic, and creative experience for children, and teaching a more pleasant and satisfying activity for the adults themselves

It would be misleading to assume, however, that all problems associated with learning have been solved, or that those aspects mentioned above have been fully and finally dealt with in every detail. There remain—to name but a few of very practical significance—the questions of the optimal time to

have a child begin learning certain materials—let us say, arithmetic or history, the effects of defective nutrition, the effects of sustained emotional tensions in the home, the development of desirable attitudes in a divided community, the roles of punishment and reward, the substitution of motivations superior to the avoidance of punishment and the courting of rewards, the relation of the teacher's mental hygiene to pupils' learning and attitudes toward school, the effect of the social organization of the classroom upon individual and group performance, the role of esthetic arts in well-rounded development, and the best methods of teaching and cultivating them.

Further experimentation on these and other problems is needed, not only from the viewpoint of how high a score a child will achieve on a test, but, and more important, from the viewpoint of what effects of a semi-permanent or permanent character a given experience or practice has on the learner In the meantime, until further experimental evidence is available, teachers and school administrators can be their own experimentalists and observers by utilizing scientifically the best that is known, as well as the feasible methods of observing and studying the individual. (See Chapter IX.)

Individual Differences

It is true that a number of generalizations can be made with regard to the learning process, and much is known about the factors influencing learning and retention It is also a fact that there are wide individual differences in the rates of learning, degrees of retention, levels of general ability, levels of special ability, kinds of disabilities, and the "personality organizations" which affect all behavior and performance, and give the person his uniqueness, or "personal idiom."

The systematic study of the nature and extent of individ-

ual differences, until recently, has been largely cross-sectional in character (see Chapter IX), employing one variable at a time This type of study has been and still is very valuable, but it must be recognized that a single measure does not portray an individual Nor is a group of such measures made at a given time altogether satisfactory, for although such a group provide a psychological "profile," they do not show the dynamic interrelationships of the individual's various traits; they do not give the organism's "picture" that is so essential No trait exists in isolation within a person, the function and significance of every trait are dependent upon the larger whole that acts as a unit It is this whole that gives each person his uniqueness To portray this uniqueness, more recent studies have employed the longitudinal method (see Chapter IX) Thus each one's tempo and peculiarities of development can be shown After this is done, it is essential to organize all the facts regarding a given individual into a "case" and to attempt an interpretation of them in order to understand that individual's uniqueness In short, the cross-sectional, normative study can be used to discover resemblances and differences among individuals with respect to a certain trait, while the organized individual pattern, or "case," can be used to explore and appraise more fully the individuality of each person There is, however, no single or simple way, or nomenclature, to designate and characterize an individual in his *totality* That is to say, people cannot be classified according to "types," so far as their whole personalities are concerned.

The causes of individual differences in abilities have been a subject of scientific experimentation and observation, on the one hand, and of emotional debate, on the other. Both approaches have been directed largely to the perennial problem of heredity and environment; or, as it has been so aptly called, nature and nurture. The question that has been asked and debated time and again is "Which is more important

in producing individual differences, heredity *or* environment, nature *or* nurture?" The answer is "Neither" Although not all psychologists, social scientists, and biologists seem to have realized it, the question is a gratuitous one and, it has been shown, finds no support in scientific fact.[1]

In a number of ways, scientific studies have shown the importance of genetic constitution (inheritance), the significance of which in the development of individuality cannot be denied At the same time, however, other studies have demonstrated the importance of environmental influences in human development Nature and nurture, therefore, may no longer be set against each other, for each is conceivable only as one set of factors in a total developmental process Indeed, the one has no meaning without the other. The two are mutually *inclusive,* since genetic potentialities are capable of development and expression only in some kind of an environment, and environmental forces can only act with the genetic bases of individuality Thus instead of speaking of "nature *and* nurture," we should speak of "nature-nurture," for the two sets of factors exist as integrals in a single process of development

Enlightened and democratic educational practice will, therefore, seek to furnish every individual with conditions as near optimal as possible; not because such conditions will directly change the inherited potentialities of the progenies of these individuals, but because in no other way can it be known to what extent an individual is capable of developing and of contributing to the culture which is transmitted by social means to the next generation. The earlier the optimum conditions are provided, the less may be "the limitations imposed by nature" upon anyone. If, on the other hand, the extreme hereditarian viewpoint were to prevail, it would mean that the chief or sole function of the educative process

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[1] See Frank S Freeman, *Individual Differences,* Henry Holt and Co, New York, 1934, Chapters 3, 4, and 5

would be merely to impart information and develop routine habits In that event, the concept of education as growth, as development, as the formation of personalities would be a fiction Fortunately, the practices of many schools indicate a recognition, at least implicitly, of the integral character of nature-nurture in the developmental process.

One aspect of a democratic society is universal, free public education As now organized, our public school systems provide free schooling from grade one through grade twelve. Many school systems provide free kindergartens, and most, but not all, states have established tuition-free universities Usually, when our educators and citizens "point with pride" to our system of public education, they like to emphasize the tuition-free universities which are open to such a large fraction of high-school graduates. This "pointing with pride" is justified, and the United States is unique in its wide availability of higher education. Yet there is a very serious deficiency in the provisions of our public educational system. namely, the almost complete absence of public nursery-schools, or, as some prefer to call them, pre-school centers

In the early chapters of this book, the prime importance of early childhood years in development, based upon psychological and biological evidence, has been emphasized. Yet it is during these early, important years of development that environmental conditions, psychological and physical, are farthest from optimal for a very large fraction of children because of their parents' lack of economic resources or because of their lack of knowledge, or both. Since the earliest childhood years are of such great recognized importance, it is altogether justifiable to suggest that development during those years should, with the cooperation of the parents, be guided by specialists, such as those who comprise the staffs of nursery schools For, with a comprehensive, adequate educational system, abilities can be fostered and developed wher-

ever found, regardless of sex, economic, social, national, or "racial" status

Optimal development of all children is not only a matter of an environment rich in intellectual stimulation Such development requires wide social and health provisions pre-natal care, post-natal care, adequate diet, play facilities, economic security and emotional stability of parents Because these conditions of development are not nearly universally fulfilled, universal fostering and development of our human resources is, as yet, by no means a fact.

Language

Human language is one of man's great assets that distinguish him from lower primates and other animals Language facilitates retention and recall of experiences, it enables man to transcend immediate perceptual experiences, it is essential to thinking, it is the major vehicle for transmission of cultures, it is a tool of human progress

But language can also be and often is a liability. It can be employed as a substitute for experience and thinking, it can even block thinking, especially when words are emotionally loaded That is, when behavior and attitudes have been developed through conditioning by means of words alone, as is done in fascist nations.

Children generally are taught that certain behaviors and things are "good" or "bad", that others are "right" or "wrong"; that still others are "nice" or "naughty." A little later in their lives they learn that "two and two make four"; that "four times two makes eight " But so far as the children are concerned, all these are mere sounds by which their activities are controlled

In the course of their developmental careers, individuals acquire such terms as foreigner, liberal, conservative, American, democratic, love, success, money, educated, cultured,

honest, religious, loyalty, and thousands of others Their crowning glory in verbiage is achieved when they can repeat some such jargon as "A circle is a closed plane curve exactly alike throughout, all of its points being equidistant from a point within, called the center", or "A molecule is a unit of matter, the smallest portion of an element or compound which retains identity in character with the substance in mass " Each of these definitions and innumerable others from all fields of learning are loaded with words which themselves need defining, and for the best definition of which relevant first hand experience is essential

The words government, state, friend, enemy, labor, business, industry, employer, and the like are acquired through definitions, and often each term is associated with an image and with a pleasant or unpleasant feeling Yet these sounds alone (words), with their associated images and connotations —whether based on any fact and concrete experience or not— govern the social behavior, attitudes, and outlook of many

In earlier chapters, we discussed the development of language and of thinking The *beginnings* of language development, at any rate, are found in the individual's experiences and perceptions Unfortunately, however, later growth of vocabulary and language often does not follow the same course Instead, language is dealt with and acquired *as if* it had an existence of its own, whereas, in fact, language is a system of sounds and written signs invented to enable man to represent and cope with his environment

The point is a simple one. Words can serve all kinds of purposes, they can convey reality and truth (as best we know these); or they can convey fiction, fancy, and falsehoods. They can facilitate communication and enlightenment, provided the communicants get down to real events in a real world which can be experienced and agreed upon Or words can block communication and understanding if the communicants remain only at the level of verbalism We need only

recall how futile most arguments and debates are. But, we hasten to add, their futility is also due to the fact that people often believe what they want to believe for their purposes, and they will often interpret facts to fit their particular patterns

In spite of the influences of emotion and one's purpose on his thinking, it is the educator's obligation to help the learner achieve as firm a factual and experiential basis as possible upon which to rest language, or, as the late Justice Oliver Wendell Holmes said, "to think *things* for which words stand." For example, the word "democracy" has frequently appeared in this volume, and, very appropriately, it is today a widely employed, emotionally-toned, basis of appeal, as against dictatorship We do not and cannot object to its emotional content, for it is clear to the student of psychology that anything that matters, that is of concern, has a degree of emotional content What we, as educators, should insist on, though, is that the meaning and emotional-tone of the symbol—democracy—shall derive from experience in and a factual understanding of what constitutes a democratic state. Specifically, in our discussions of development for democratic living, we have indicated that a democratic society is one in which no one is kicked about; where all talents are fostered regardless of social or economic status, where there is freedom to vote, to speak, to earn an adequate living, to worship; where no one is exploited, where there is a common sharing of interests, responsibilities, and outcomes, where there is enlightened leadership consonant with the foregoing conditions Probably the reader will have one or more conditions to add to the above, or perhaps there are some he wishes to eliminate or modify But *the definition* of a democracy is not the point of our present discussion. Our point is that once we know or agree on what constitutes democratic living, we can then proceed to examine actual, factual living conditions to see where and the extent to which democratic living

is being practiced, as we understand it, and thereby gain further understanding of the democratic process.

The same procedure applies to all words and other symbols. Symbols are not things We cannot ride in the word "auto," nor smoke the word "tobacco," nor rest on the word "chair" Communication is impossible or, at best, difficult unless the persons involved have a background of experience so that they agree on what they are talking about. This apparently simple principle has been and still is largely ignored in many aspects of education conducted on a verbalistic, abstract level It is not surprising, therefore, that so much that is taught and learned is so quickly forgotten and so ineffective in developing the learner's behavior and his attitudes

The pitfalls and traps of language have to be avoided not only in teaching and school learning, but in all social living as well Right here educators and other citizens face a perplexing problem Modern society has so many aspects and is so complex that it is manifestly impossible for any one person to have the facts and experiences that will enable him to give substance to and evaluate all the language he hears and reads. A current case in point is the word "vitamins" which is now being exploited to advertise and sell practically everything from hair tonic to shoe polish. Yet, so far as the layman is concerned, vitamins might be just so many pixies—an imaginary something or other that may "do things" for you. And the scientist who actually knows about vitamins is himself a layman in other fields and is often as naive in his use of the language of, for example, the social sciences as others are in the use of the terms of the natural sciences, for instance, his glib use of "the law of supply and demand," or the phrase "human nature is like that."

Since modern society is so extensive and complex, and since no one can know everything, it is an obligation of teachers to help develop in their pupils an attitude of fact-

seeking, of asking "What are the facts?" rather than debating about *words* Abstractions cannot be eliminated from language, and it is unlikely that society will be simplified Therefore, it is necessary constantly to seek the facts and events at the bottom of language and behavior.

Finally, since in our society everyone is dependent upon the integrity of specialists and experts in so many aspects of living, it is necessary that educators at all levels, with the cooperation of other social agents and agencies, develop in these specialists and experts attitudes of social responsibility rather than mere personal aggrandizement, in which technical terms become status-giving and, not infrequently, deceptive devices.

Security

There seems to be no question in the minds of psychologists dealing with problems of adjustment that one of the prime essentials for a well-adjusted personality is security in interpersonal relations (family, school, community, and other groups), as well as in physical and economic matters This means simply that children, adolescents, and adults want to be accepted and liked, they want to be desired members of the particular groups that are esteemed in their orbit, and they may also aspire to membership in other and "higher" orbits

Physical and economic insecurities are not dissociated from emotional insecurity. In Chapter VII we indicated how physical disabilities and anomalies could affect one's concept of the self and one's status in his groups. But there are still other sources, among them the economic. Anxiety and insecurity due to loss of opportunity to work, due to illness and consequent loss of income, poverty, the fear of old age without income, and the like, affect a person's immediate emotional status If the state of anxiety and insecurity is pro-

longed, it may become a serious element in a person's permanent emotional organization

Fully as significant, also, is the fact that such anxiety of parents is felt by their children, for quite aside from physical deprivation, insecure parents are less able to give their children the affection and emotional support they need Regardless, therefore, of economic "laws" and economic theories, the fact is that psychological adjustment and stability require the removal of causes giving rise to anxieties and fears over material welfare. Few people now envision a utopia, but economic and occupational sources of emotional difficulty can be minimized. It is not surprising that attention to the welfare of employees or to that of the "small" businessman is accompanied by greatly improved morale among them [2]

Modern, complex, urban society presents another source of difficulty, for often under modern conditions individuals live anonymous lives in which it is difficult to achieve a sense of personal worth and of "belonging." If a man's or a woman's occupation cannot give that sense of worth, then it is necessary that some other resources and means be provided.

A very large number of adults in our society cannot functionally identify themselves with the place in which they live, with the community, as can the adult in a primitive society, or the child in our own society. Our adult must range among numerous groups and function in a limited way in each. Rarely, if ever, does he have full community of interests with the members of any one group. His work, religion, play, and family life are separated as to place and groups Society is so large and complex that the adult cannot realistically encompass it. As a result, the group (city, state, nation, perhaps even his "national society") is relatively insignificant in his thinking and awareness, however important it may be in

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[2] Elton Mayo, *The Human Problems of an Industrial Civilization*, The Macmillan Co, New York, 1933

actual fact. The adult thus comes to conceive of himself as the one constant factor in a perpetually varying scene Consequently, he develops a high degree of individuation, even though he may be a conformist in many ways This individuation can, however, be a source of anxiety; for, since there are so many elements and forces beyond his control, and even beyond his apprehension, his status and stability are easily threatened or upset So the adult, unable to understand or deal with the social and economic forces besetting him, may regress to rather primitive levels of behavior by ascribing his difficulties to "the Gods," or to "the hand of Fate", or by finding a scapegoat upon whom he can project his difficulties The substitution of a reflective approach to his difficulties is clearly a broad educational problem

From the foregoing we should not assume that anxieties and insecurity are phenomena only of adolescents and adults There is reason to believe that the subject is of importance from earliest infancy We have already stated that children —even very young ones—feel the effects of parental anxiety The manner in which infants are cared for and handled by parents also appears to be a factor in the children's emotional status. For instance breast-feeding as against bottle-feeding is a factor in the friendliness or fear that infants show toward strangers, with the advantage on the side of breast-feeding The warmth and support derived from being held by an adult, and awareness that a parent is within reach or call are other elements of importance in security during infancy and childhood In general, the family constellation and interpersonal relationships therein are effective forces in producing security or insecurity. There is room, however, for more detailed and specific knowledge of the effects of various family interrelationships on personality development We need, especially, more scientific information concerning the effects of corporal and other forms of punishment upon

children, as regards their attitudes toward adults inflicting the punishment, and toward authority in general.

Nor does the problem end with the family What are the forces that make for unsocial or anti-social development? The exploiter? The vindictive individual? Why is it that under apparently similar conditions of insecurity and rejection some children and adolescents become delinquent or even criminal, whereas others, even in the same family, do not? What are the effects upon the personalities of members of "minority-groups," who are often stigmatized by an appellation? What are the effects of conflicts between attitudes and values of the home, the school, and other community agencies? These and similar questions have been extensively investigated, and there is available a fairly valuable fund of information, interpretation, and theory. But these are questions meriting much more extensive study

A child's school career can be an additional source of anxiety and insecurity, but it can also be a source of security and adjustment Much is known about the effects of failure —especially cumulative failure, about rejection or sympathy on the part of teachers; about rejection or acceptance by other pupils, and about other sources of pleasantness and unpleasantness of school experiences Although further experimentation and observation, as in anything else, are necessary, the immediate problem here is mainly one of implementing the available fund of knowledge

Values

Psychologically a value is anything that any individual desires for any reason whatever. A value is what an individual prefers, without regard to whether it is good or bad, whether it has utility or not, whether it is beneficial or harmful Value is created if the individual believes, even if wrongly, that a certain objective will enhance his purposes or his life.

In general, of course, the values of individuals comply with social norms of utility and propriety We all need some food and shelter, but prefer to have the kind of sustenance, home, and furnishings that are approved by some group We need a certain amount of clothing, but we also strive for attire, trinkets, and ornaments which have a social value, but no utility. Most people value membership in a variety of organizations, some of which have utility, whereas others do not. Most adolescents and adults conduct themselves according to certain principles which are esteemed or demanded in their societies In this sense all these values are common group values

Certain needs—food, drink, rest, security, and others—are common to all mankind. But there are also many desires which are culturally determined. A culture develops certain values as norms; these become, through education and habit, common to nearly all members of the society Now, the educational process whereby these values become the common possession of nearly all persons can be the mechanical, conditioning sort which trains them to react to a stimulus, a signal, usually language, in much the same way that infrahuman animals can be trained to go through specified stunts on verbal command

It is true, of course, that very young children have to be trained in certain essentials· habits of eating, sleeping, eliminating, non-destruction,[3] use of some implements; and it is true that their *earliest* words and speech are mechanically acquired But the values and attitudes most significant in social intercourse are developed during those years when the individual's ability in organizing his experiences and in reflective thinking are also developing and, as already shown, generally reach a high level of development before the age of ten. Values and norms, therefore, can be developed on a rational basis, beginning fairly early in life.

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[3] This does not imply that "destructiveness" is a "natural" trait

Where there is purely mechanical adherence to social norms, there social development and progress are impossible except through revolution The converse in a democratic society, however, is the law-abiding, socially-complying citizen, to be sure, but the citizen who understands the basis upon which his behavior rests and who is capable of scientific, reflective thinking that is able to effect orderly and desirable change Schools are obligated to promote this type of social adherence rather than the unreflective, mechanical type.

It is an obligation of educators, child psychologists, and social psychologists to help answer much more fully a number of questions that are of basic importance in the development of values and attitudes. What, in detail, are the effects upon values, interests, and stereotypes produced by extended and easy communication by means of radio, newspapers, and magazines? How may attitudes, once established, be modified? How may parental and other adult biases—if they are undesirable—regarding "races," national groups, occupational groups, social institutions, and so on be dealt with and counteracted in their children? How may democratic leadership be best developed? What are the component qualities of genuinely democratic leaders? But here again, as in the case of other psychological and developmental problems, we have some very important, though partial, answers in the form of scientific and empirical information awaiting implementation in schools and other social agencies.

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XXI

PROBLEMS AND PROSPECTS OF
HUMAN DEVELOPMENT

BEFORE CONCLUDING the study of development and learning in the democratic community, it is well to consider the functions of teachers, parents, and other guides in relation to the whole situation affecting the individual. Every home and school lies within a community, which affects its character both by negative limitation and by positive promotion. The local community, in turn, takes many of its characteristics from the national life, while the nation itself must make adjustments to the acts of other nations throughout the world. At any time the development of an individual child may be retarded or advanced or directed by an event occurring in a far corner of the earth Consequently, a study of human development that limits itself to the home and the school or that fails to reach beyond the local community will not adequately face the crucial issues.

Nor will the study of psychology, even when reinforced by intimate experience with youngsters, constitute a basis broad enough for guiding youth. Parents and teachers need to understand also economic, political, social, and cultural conditions through a study of the social sciences beyond psychol-

ogy, and all need to have practical experience as workers
and citizens While general education at the secondary level
should introduce almost all youths to the findings of sociol-
ogy, economics, and cultural history, as well as to literature
and the arts, the physical and biological sciences, and mathe-
matics, teachers need to pursue these studies further at the
college level, not only for their own personal development
but as means to a fuller understanding of human develop-
ment and of the very difficult problems humanity is meeting
at the present time.

The democratic principle of promoting optimum develop-
ment of the whole individual leads the adult guide, then,
into a deeper and wider study of many factors and forces
that reach beyond the area usually allotted to the science
of psychology and beyond the boundaries of the local com-
munity. These factors include· health conditions, economic
situations, political organizations, cultural opportunities,
recreational facilities, and religious attitudes Wise parents
and teachers balance their attention to the immediate needs
of individual youngsters with concern and action in regard
to general influences in the community and in the world at
large This broad concern links development and learning
in childhood and youth with adult education and general
progress so that the mature guide renews his own growth
and his democratic attitude of promoting the welfare and
development of his neighbors.

Teachers, especially, may gain from these wider consider-
ations a sense of their own functions and their place in the
social organization. They may see themselves as contributing
to a complex of factors in the youngsters' lives, as taking a
degree of leadership in the community, and as cooperating
with other teachers in constructive modification of the school
system. Teachers, like the members of other vocations and
professions, need a sense of perspective concerning their own
place in society in order to make a reasonable evaluation of

their opportunities and responsibilities A just sense of his own worth is an asset in any individual's development

Since all the factors and forces mentioned above have been touched upon repeatedly in the pages of this book, we will discuss briefly as representative of the many aspects of life only certain economic conditions, political situations, and religious attitudes. These are chosen because they involve major problems and thereby bear significantly upon the prospects of human development

Economic Factors

Economic conditions are intimately related to human development in a number of ways In the first place, human development depends upon economic goods, such as food, clothing, housing, and books, and upon services, such as medical, transportation, and educational. The total amount of goods and services available for distribution depends upon an efficient economic system in which production is maximal. Immense quantities of toys, sporting goods, musical instruments, radios, automobiles, airplanes, telephones, books, magazines, and a multitude of other items are necessary to maintain and promote our culture. Steady employment, engineering skill, the promotion of research of all kinds, and many other conditions which govern balanced production, must enter into an economic system that contributes at all adequately to human needs

Along with the problems of production, the democratic citizen considers the problem of distribution of goods and services upon a fair basis. This problem involves an adjustment of such principles as meeting the physical and psychological needs of each individual, sharing according to ability to produce, and according to ability to use goods, while keeping in view both the present development of each individual and the probable future development of the community.

These adjustments can be made adequately only when teachers, parents, and other citizens participate actively with managers of business concerns, labor leaders, school administrators, and government officers in planning so that economic production and distribution serve most fully the long-range interests of the public.

The economic situation of the present and of the recent past in the United States has also affected individual development in a less obvious way, namely, through the personal relationships and emotional attitudes established by economic conditions. The very wide differences in income between the poor, the middle-class, and the rich often result in feelings of inferiority on the part of the less privileged that amount to emotional maladjustment with all the retarding effects involved. These unfortunate attitudes are in many cases transferred from parents to children at an early age, thus directly interfering with their social-emotional development and indirectly with their intellectual progress. As a consequence of these differences in economic status, antagonisms grow between employers and employees that interrupt the avenues of communication necessary for production and for mutual understanding. Also, for example, antagonisms are aroused between farmers who produce food on a narrow economic margin and the urban consumers with mediocre incomes who have to meet a relatively high cost of living Instead of discovering the common interests and problems that exist, economic groups enter into conflicts that retard not only production and distribution but likewise the personal development of all concerned.

In addition to conflicts between groups, competition within a group for jobs, prices, or customers keeps many families on the verge of emotional instability through tension caused by the income-expense imbalance and the fear of impending unemployment or of business failure. Consequently, the alleviation of emotional and social tension in

the economic area, deriving from anxieties and fears, is one of the major requirements for further human development On the positive side, the maintenance of employment in work that gives each individual a sense of his own personal worth and of his sharing of responsibility in the economic community is essential for continued development and stability of the adult in the matter of social maturity.

It is evident that developmental programs, educational procedures, and economic practices must be brought into closer accord. Experimentation in schools has demonstrated beyond doubt that democratic guidance in group inquiry and cooperative projects is superior in its contributions to the development of motor skills, intellectual understandings, and social-emotional attitudes to the earlier emphasis on competition for goals set by the teacher's dictation One of the major problems of this era may be to devise economic organizations that will carry forward into adult life the psychological processes begun in schools which have designed ways of teaching that avoid both laissez-faire neglect and authoritarian domination and that promote the sharing of common interests and the free, responsible interchange of ideas.

Teachers, on the one hand, can scarcely have an adequate view of the meaning of education and development without some acquaintance with the problems that beset youth as they emerge from the protected areas of their early years to meet the risks and hardships of life, wherein they desire to establish themselves as worthy members of society—economically, politically and socially On the other hand, citizens generally and businessmen particularly carry a heavy responsibility for so transforming the economic system that it is controlled and directed much more effectively in the interest of the development, education, and welfare of all the members of the community. Bridging the chasm between school

life and business life involves substantial reconstruction in both areas guided by psychological facts and social ideals.[1]

Political Factors

The problem of control of economic and educational conditions in the interest of the public leads directly into questions of political organization Political democracy is not achieved merely by establishing an opportunity for each individual to cast his one vote at elections and by applying the principle of majority rule. Informed leadership is required all the way from membership on the local school board to the presidency of the United States. The task of keeping the leadership in touch with the needs of the mass of the people, of maintaining the rights of minority groups, and of giving each individual a wide range of personal freedom and responsibility becomes extremely complex as modern means of communication and transportation establish a world-wide economic organization requiring earth-circling political relationships. The task is further complicated by the increasing and ever widening realm of specialization and technical competence necessary for the operations of a modern society The task cannot be avoided because the establishment of the democratic principle of individual opportunity for optimum development depends ultimately upon the political power held by states committed to the democratic way of life Since in a certain sense the fate of humanity lies in the hands of politicians, it is necessary for all citizens, teachers included, to participate in organizations that can effectively carry

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[1] See, for example, *An Economic Program for American Democracy,* by Seven Harvard and Tufts Economists, R. V. Gilbert (and others), Vanguard Press, New York, 1938, also, Wesley C. Mitchell, *The Backward Art of Spending Money,* McGraw-Hill Book Company, New York 1937, especially the essays entitled, "Research in the Social Sciences," "Social Science and National Planning," "Intelligence and the Guidance of Economic Evolution," "Making Goods and Making Money," "The Prospects of Economics "

through to governmental leaders the views of their constituents on fundamental issues and that can give full support to all the functions of the government Political understanding and political action are essential aspects of development in the world today [2]

The Individual and the Transmission of Culture

Lest the importance of economic and political organization as parts of a culture be overemphasized, it must be recognized that these as well as other aspects of culture are always created by individual human beings and that many aspects of culture have survived through the centuries in spite of plagues of disease, economic catastrophies, and changes of political power involving war. Furthermore, the transmission of culture from one generation to the next depends upon individual persons. Although we speak of culture as being transmitted in the form of tools, machines, buildings, books, paintings, sculpture, musical compositions, water systems, telephone lines, and many other products of industries, crafts, and arts, each new generation of children must be taught by adult guides how to use these tools, read these books, play and sing these musical compositions. In other words, each adult guide must transfer to children a culture which lies within the range of his own personal possession. Again, a teacher or parent inevitably transmits not only what he knows but what he *is* The impact of one individual upon another is the essence of cultural transmission. It has been aptly said that the culture we transmit is what we "do to developing boys and girls " The economic and political organization constitutes a framework that may definitely retard or greatly enhance this process by which one

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[2] See George S Counts, *The Prospects of American Democracy,* The John Day Company, New York, 1938, also, John Dewey, *The Public and Its Problems,* Henry Holt and Co , New York, 1927

individual endeavors to share all aspects of his culture with another.

The Meaning of Religious Attitude

The foregoing discussion assumes that each mature individual takes a religious attitude. The essential features of the religious attitude are discriminating respect for the historic contributions to human culture, aspiration for a still better way of life, and faith in its attainment In this sense every person who believes that the human race has developed, that human lives can be developed further, and who desires to promote his own development and that of others is religious

But like development itself the significant religious attitude must have a *direction* We have chosen the democratic direction with its faith in human value and intelligence, its goal of individual emotional and moral integrity, and its reliance upon forms of social organization that widen the area of common interests voluntarily shared Thus the religious attitude may be identified with the social outlook or philosophy of democracy. Mutual understanding of and participation in the democratic way of life may become the basis for a *common faith* This common faith in democracy is broad enough to include persons of diverse sectarian training and of diverse cultures It is thereby able to replace the retarding effects of religious and cultural conflicts with a well unified moral effort for human betterment Accordingly, every person who seeks earnestly to promote the democratic way of life in his own community is taking an ethical or religious attitude that integrates his emotional power with his intelligent choice of means and ends.[3]

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[3] See John Dewey, *A Common Faith,* Yale University Press, New Haven, 1934, also, Henry Neumann, 'Ethical Experience as the Basis of Religious Education," in *Aspects of Ethical Religion*, Horace J Bridges, editor, American Ethical Union, New York, 1926, pp 113-129.

The Prospects of Democracy

What, then, are the prospects of human development? Granted that political power is in the hands of those who take the religious-philosophic attitude of supporting optimum human development, who have faith in the democratic way of life, the prospects, even in a time when democracy faces powerful enemies, may be better than ever before in human history The realization that the extensive scientific findings about development and learning can be turned in a chosen direction opens visions of the great possibilities that lie in our new knowledge of human beings. Much more than ever before is now known about child development in the first decade of life Today parents and teachers know better how to foster and safeguard physical and intellectual growth, develop motor skills, stimulate the effective use of language, relate the organization of emotions to needs, and promote appropriate patterns of social grouping during the first ten very important years of life. When these developmental findings are combined with a new orientation in the psychology of learning, confidence is established in the ability of adult guides to develop well rounded, relatively mature boys and girls at the age of about ten years. This progress in the first decade permits the use of the whole second decade of life for the fuller transmission of the democratic culture and for the development of each youth as a unique personality who begins to make his own creative contributions to the culture as well as cooperating in the extension of democracy. By the end of the second decade youths begin to share the responsibilities of social choice and guidance. However crucial the problems of today, they can be faced with understanding and courage based upon a deeper knowledge of human nature and a more mature philosophy of life.

We conclude, therefore, with a broad view of human development that recognizes, in addition to the psychological

guiding and educating functions of parents and teachers, the effects of economic conditions, political organizations, religious attitudes, and many other factors All these together affect the prospects of democracy Indeed, they remake democracy from day to day For democracy unlike autocracy is not a finally completed or absolutely fixed way of life either in practice or in conception Democracy, too, is developmental in character. Opportunities are always open for new discoveries in social organization appropriate to meet the changing conditions of modern life Thus the teacher or other adult guide has two related responsibilities· the development of mature individuals and the promotion of a democratic culture Teachers in their daily tasks actually may participate in the great experimental venture of creating a new democracy in their school and community, we may all face the crucial problems and contribute to the better prospects

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A consideration of the underlying conflicts in education concerning social control and the nature of freedom reaching the conclusion that experience is both the means and the goal of education

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Bode, Boyd H , *Democracy as a Way of Life,* The Macmillan Company, New York, 1937
A widened concept of democracy including criticism of earlier, inadequate interpretations with applications to the reorientation of education in America

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The article points the direction for democratic education in contrast with the characteristics of education under totalitarian dictatorship.

Thayer, V T., "How the Social Studies Teacher Can Foster and Defend Democracy," *The Harvard Educational Review,* 1941, vol xi, no 4, pp. 459-472.
The article points out that the American school illustrates the relationship of the individual to society, that the study of a community illustrates the concept of mutuality that lies at the basis of all democratic living, and that there are essential differences between an individualistic and a socialized democracy

Kallen, Horace M , *Individualism, An American Way of Life,* Liveright, New York, 1933

The author believes, among other things, that "individualism as a way of life in modern society would mean the surrender of their privileges by the privileged and of their irresponsibility by the unprivileged, in a common responsible effort to provide for each individual security and freedom "

The first five yearbooks of the John Dewey Society, which was "founded to meet the growing need of the times for the study of education in its interaction with society and the culture," are listed below because all of them lead the thought and action of their readers far beyond the confines of the schoolroom into the wider conditions that affect human development.

Kilpatrick, William H , editor, *The Teacher and Society,* The First Yearbook of the John Dewey Society, D Appleton-Century Company, New York, 1937

The yearbook shows why "under existing conditions the teacher is the crucial factor in any conscious effort to bring school and society effectively together "

Alberty, Harold B , and Bode, Boyd H , editors, *Educational Freedom and Democracy,* Second Yearbook of the John Dewey Society, D Appleton-Century Company, New York, 1938

The yearbook recognizes educational freedom as a problem that requires definition because it has a distinctive meaning in a democratic social order

Rugg, Harold, editor, *Democracy and the Curriculum The Life and Program of the American School,* Third Yearbook of the John Dewey Society, D Appleton-Century Company, New York, 1939

The yearbook is presented as a guide for teachers, youth, and their parents in the study of the problem of bringing forth on this continent "the civilization of economic abundance, democratic behavior, and integrity of expression which is now potentially available "

Axtelle, George E , and Wattenberg, William W , editors, *Teachers for Democracy,* Fourth Yearbook of the John Dewey Society, D Appleton-Century Company, New York, 1940

The yearbook discusses changes necessary in the education of teachers if they are to guide youth and themselves effectively into more democratic ways of living

Brameld, Theodore, editor, *Workers' Education in the United States,* Fifth Yearbook of the John Dewey Society, Harper and Brothers, New York, 1941

The yearbook presents a description and evaluation of workers' education as a contribution to democratic culture from an area beyond the scope of academic education

Bruce, William, *Principles of Democratic Education,* Prentice-Hall, New York, 1939, Chapter 16
This chapter entitled, "Finding a Social Outlook through Experience," raises the question whether children, youths, and adults, especially teachers, have adequate breadth and depth of experience in democratic living.

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